TAINY GMOD-S1 / TAINY GMOD-S2

User Manual

SAGEM
DR. NEUHAUS

Safety precautions

General: The product TAINY GMOD-Sx complies with European standard EN60950, 05.2003, Safety of Information Technology Equipment.
Read the installation instructions carefully before using the device.
Keep the device away from children, especially small children.
The device must not be installed or operated outdoors or at damp locations.
Do not operate the device if the connecting leads or the device itself are damaged.

External power supply: Use only an external power supply which also complies with EN60950. The output voltage of the external power supply must not exceed 30VDC. The output of the external power supply must be short-circuit proof.

When connecting to a battery or accumulator, make sure that an all-pole circuit-breaker (main battery switch) with sufficient selectivity and a fuse with sufficient selectivity are provided between the device and the battery or accumulator.

Please pay regard to section *Technical Data* of the user manual, as well as the installation and utilisation regulations of the respective manufacturers of the power supply, the battery or the accumulator.

SIM card: To install the SIM card the device must be opened. Before opening the device, disconnect it from the supply voltage. Static charges can damage the device when it is open. Discharge the electric static of your body before opening the device. To do so, touch an earthed surface, e.g. the metal casing of the switch cabinet. Please pay regard to section *Step1: Inserting or changing the SIM card* of the installation manual.

Handling cables: Never pull a cable connector out of a socket by its cable, but pull on the connector itself. Cable connectors with screw fasteners (D-Sub) must always be screwed on tightly. Do not lay the cable over sharp corners and edges without edge protection. If necessary, provide sufficient strain relief for the cables.

For safety reasons, make sure that the bending radius of the cables is observed.

Failure to observe the bending radius of the antenna cable results in the deterioration of the system's transmission and reception properties. The minimum bending radius static must not fall below 5 times the cable diameter and dynamic below 15 times the cable diameter.

Radio device: Never use the device in places where the operation of radio devices is prohibited. The device contains a radio transmitter which could in certain circumstances impair the functionality of electronic medical devices such as hearing aids or pacemakers. You can obtain advice from your physician or the manufacturer of such devices. To prevent data carriers from being demagnetised, do not keep disks, credit cards or other magnetic data carriers near the device.

Installing antennas: The emission limits as recommended by the Commission on Radiological Protection (13/14 September 2001) must be observed.

Installing an external antenna: When installing an antenna outdoors it is essential that the antenna is fitted correctly by a qualified person. Lightning Protection Standard VDE V 0185 Sections 1 to 4, in its current version, and further standards must be observed.

Lightning protection category for buildings: For outdoor installation, the antenna may be fitted only within the lightning protection zones O/E or 1. These lightning protection zones are prescribed by the lightning protection spherical radius.

The EMV lightning protection zone concept is to be observed. To avoid large induction loops a lightning protection equipotential bonding is to be used. If the antenna or antenna cable is installed near to the lightning protection system, the minimum distances to the lightning protection system must be observed. If this is not possible, insulated installation as described in VDE V 0185 Sections 1 to 4, in its current version, is essential.

Warning !

This is a class A equipment. This equipment can disturb other electric equipment in living areas; in this case the operator can be demanded to carry out appropriate measures.

Warning !

Please note that data packets exchanged for setting up connections, reconnecting, connect attempts (e.g. Server switched off, wrong destination address, etc.) as well as keeping the connection alive are also subject to charge.

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Contents

1 Introduction: The TAINY GMOD-S1 / TAINY GMOD-S2 6
Practical Application Examples 6
2 Connections 7
2.1 Overview 7
For TAINY GMOD-S2 8
2.2 GPRS/GSM connections with TCP/IP protocol 9
Application ←→ Control centre or Application ←→ Application (via TAINY SwitchingCenter / TAINY ModemServer) 9
Application ←→ Control centre (via TAINY ComPortServer) 10
2.3 GSM connections without TCP/IP protocol 11
3 Operating requirements 12
3.1 GPRS subscriber contract 12
To be able to use the TAINY GMOD-Sx... 12
3.2 GPRS: Fixed / known IP address of the communication partner (TAINY SwitchingCenter / ModemServer or TAINY ComPortServer) 12
4 The interfaces COM und COM2 13
4.1 The interface COM of the TAINY GMOD-Sx 13
For the application 13
For service of the device 13
4.2 The interface COM2 of the TAINY GMOD-S2 14
For a second application for accepting incoming GSM modem calls 14
5 Putting the Device Into Operation 15
Connectors and LEDs 15
5.1 Overview of the Functions of the LEDs 16
5.2 Step1: Inserting or changing the SIM card 17
5.3 Step2: Connecting the device and switching the device on 21
Top-hat rail mounting 22
5.4 Step 3: Prepare the Configuration 23
Execute the installation program install.exe 23
Windows 2000: Install the driver for access to the TAINY GMOD-Sx in service mode 24
Windows 2000: Create the dial-up connection 26
Windows 2000: Install the configuration program TAINY GMOD-SxConfig 29
Windows XP: Install the driver for connecting to the TAINY GMOD-Sx in service mode 30
Windows XP: Create the dial-up connection 33
Windows XP: Install the configuration program TAINY GMOD-SxConfig ... 35
6 Configuring the TAINY GMOD-Sx 37
Procedure 37
Remote configuration 37
6.1 Performing the Configuration locally 37
Prerequisites 37
Executing the configuration program 37
6.2 The Configuration Table 39
6.3 Changing the user name and password of the TAINY GMOD-Sx service interface 66

6.4 Saving the Parameter Settings in a File / Fetching Them From a File 67
Saving the settings in a file 67
Fetching settings from a file and loading them into the TAINY GMOD-Sx 67
7 Remote configuration 69
Precondition 69
Procedure 69
8 Log File: Connection Statistics for the Current Connection 71
Viewing the log file 71
9 Displaying Device and Status Information 72
Viewing device information and connection statistics using GPRS-RS232ConfigTSC 72
Device Information page 73
Session Statistics / Total Statistics pages 73
Log file explanations (next page) 73
PPP layer (PPP = Point-to-Point Protocol) 74
IP layer (IP = Internet Protocol) 74
Status Information page 75
10 The Firmware of the TAINY GMOD-Sx 76
Updating the firmware 76
11 Loading Web Pages into the TAINY GMOD-Sx 77
Loading updated HTML pages into the TAINY GMOD-Sx 77
12 COM interface: AT commands supported in CS mode 78
13 Glossary 79
DynamicDNS providers 79
APN (Access Point Name) 80
RAS (Remote Access Services) 80
TCP/IP (Transmission Control Protocol/Internet Protocol) 81
PPP (Point to Point Protocol) 81
Service Provider 81
Protocol, transmission protocol 81
COM port, virtual COM port 81
Client / Server 81
14 Technical Data 82
Interface COM 83
Interface COM2 (TAINY GMOD-S2) 83

1 Introduction: The TAINY GMOD-S1 / TAINY GMOD-S2

TAINY GMOD-S1 and TAINY GMOD-S2 (in the following referred to as TAINY GMOD-Sx) serve the following purpose:

For all GPRS communication between machines which themselves do not support TCP/IP	The device establishes bi-directional data connections via the GPRS (**G**eneral **P**acket **R**adio **S**ervice) of a GSM network (**G**lobal **S**ystem for **M**obile **C**ommunication). The communication by means of TCP/IP-protocol necessary for it is provided by the TAINY GMOD-Sx. Thus it transmits data from devices, machines, computers etc., which themselves do not support TCP/IP. As a fallback solution (e.g. GPRS not available) or additionally, TAINY GMOD-Sx can also provide this communication with TCP/IP protocol via the GSM network (and Internet).
GSM data connections	TAINY GMOD-Sx can also work as a GSM modem and can set up GSM data calls (CSD) with 9.600 bps to other modems in the GSM or analogue network. It can set up GSM data connections (9.600 bps) and can also accept such calls.
Remote service via GSM data connection	TAINY GMOD-Sx also supports remote service via GSM data connection.

Practical Application Examples

- Collecting data from electricity, water or gas meters, from vending machines or fill-level sensors
- Remote maintenance
- Transmission of alarm messages
- Fast data transmissions for electronic payments
- Control and checking of machines
- Control and checking of vending machines
- Transmission of weather data

The TAINY GMOD-Sx is ideally suitable for use in all M2M (Machine-to-Machine) or SPC (Stored-Program Control) applications.

➲ With time-critical applications restrictions can exist with GPRS transmissions. Although the transmission in the GPRS network normally only lasts for a few 100 milliseconds, due to the packet-switching infrastructure of the GPRS network some individual data packets can be underway for somewhat longer, i.e. up to several hours.
Problems can also arise with the use of time-critical control centre software if the software expects responses to issued commands within a specific time.

2 Connections

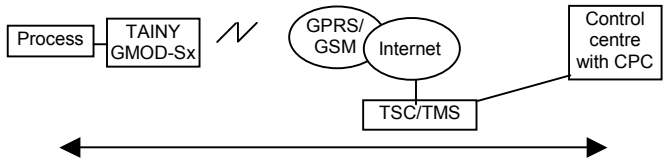
2.1 Overview

The following diagrams show connections which can be implemented with the TAINY GMOD-Sx. You will find further explanation of the diagrams in the subsequent subsections.

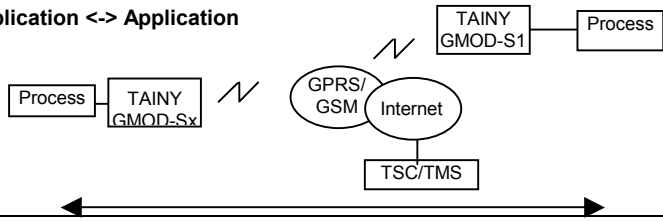
GPRS/GSM-Internet

Via TAINY SwitchingCenter (TSC) / ModemServer (TMS) TAINY ComPortClient (CPC)

Application <-> Control centre

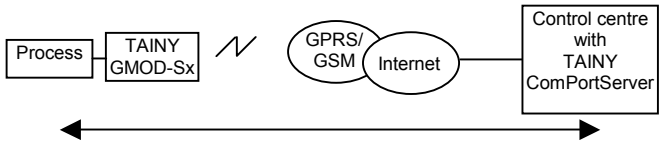


Application <-> Application



Via TAINY SwitchingCenter (TSC)/ ModemServer (TMS)

Application <-> Control centre



Via TAINY ComPortServer

GSM-GSM/PSTN

Application <-> Control centre

TAINY GMOD-Sx (service mode) <-> Service PC

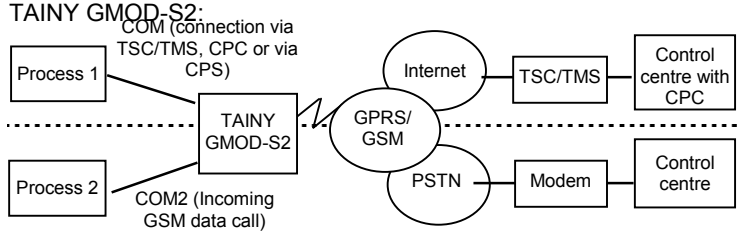
For TAINY GMOD-S2

TAINY GMOD-S2 is equipped with a second COM interface (see also *The interface COM2 of the TAINY GMOD-S2*, page 14). This interface COM2 can be used to accept incoming GSM data calls (CSD 9.600 bit/s).

GPRS/GSM-Internet
via
TAINY SwitchingCenter (TSC) / ModemServer (TMS) or TAINY ComPortServer

GSM-GSM/PSTN

Thus the following configuration is possible with the TAINY GMOD-S2:



➲ Please note:
An existing GPRS connection, i.e. to the TAINY SwitchingCenter, will be interrupted when a GSM data call comes in. So, both applications/processes may be connected to the TAINY GMOD-S2, however only one communication path at a time can be used.

2.2 GPRS/GSM connections with TCP/IP protocol

Following possibilities exist for the GPRS/GSM connections with TCP/IP protocol:

Application ←→ Control centre or Application ←→ Application (via TAINY SwitchingCenter / TAINY ModemServer)

TSC terminal device:
TAINY GMOD-Sx connected to application

TAINY SwitchingCenter (TSC) / ModemServer (TMS)

TSC terminal device:
TAINY ComPortClient (CPC) with application, e.g. control centre SW

The TAINY GMOD-Sx establishes the connection to a computer via GPRS. This is a PC with a link to GPRS/Internet on which the TAINY SwitchingCenter (TSC) or the TAINY ModemServer (TMS) is installed. These software-based switching gateways act like a telephone exchange: They facilitate “leased line” or “dial-up connections” between any TSC terminal devices, e.g. other TAINY GMOD-Sx or a PC installed with control centre software and TAINY ComPortClient (CPC). The TSC terminal devices can be accessible via GPRS, Internet or Intranet.

Dial-up connection mode CS

Requires that the TAINY GMOD-Sx is controlled like a conventional modem by AT commands issued by the application connected to it. The number indicated with the AT command ATD is transmitted to the TAINY SwitchingCenter / ModemServer. The TSC / TMS will then put the call through to the terminal device to which the number is allocated. TAINY GMOD-Sx is then working in Dial-up connection mode – **CS** (CS = **C**ircuit **S**witched).

Leased line mode LL

In operating environments where the transmission of a number is not possible or not provided for, the TAINY GMOD-Sx must be permanently allocated to another TSC terminal device by the TAINY SwitchingCenter / ModemServer. In this case TAINY GMOD-Sx is working in *Leased line mode (LL)*.

In this connection mode the TAINY GMOD-Sx can activate or deactivate the connection as soon as it receives the hardware signal DTR ON or OFF from the connected application.

Alternatively, the connection can be permanently activated (Always On) as soon as TAINY GMOD-Sx is supplied with the operating voltage, even if the connected application is not issuing any sort of control signal to the TAINY GMOD-Sx.

Application ←→ Control centre (via TAINY ComPortServer)

TAINY GMOD-Sx
connected to application

TAINY ComPortServer with application, e.g. control centre software

The TAINY GMOD-Sx establishes the connection to a computer via GPRS. This is a PC with a link to GPRS/Internet on which the TAINY ComPortServer (CPS) is installed. This is a software which provides the control centre software, which is executed on the same computer, with a maximum of 255 virtual COM ports. In this way, the control centre software can simultaneously connect with up to 255 remote CPS devices via GPRS/Internet, e.g. other TAINY GMOD-Sx.

Leased line mode LL

Virtually a leased line connection is established between TAINY GMOD-Sx and the control centre computer on which the TAINY ComPortServer is installed. TAINY GMOD-Sx is working in *Leased line mode (LL)*.

In this connection mode the TAINY GMOD-Sx can activate or deactivate the connection as soon as it receives the hardware signal DTR ON or OFF from the connected application.

Alternatively, the connection can be permanently activated (Always On) as soon as TAINY GMOD-Sx is supplied with the operating voltage, even if the connected application is not issuing any sort of control signal to the TAINY GMOD-Sx.

2.3 GSM connections without TCP/IP protocol

GSM data calls without packet oriented data communication

TAINY GMOD-Sx can also work like a conventional GSM modem to transmit data to other modems in the GSM or analogue network with a maximum data rate of 9.600 bit/s.

Such connections can be used for configuring the TAINY GMOD-Sx, or they can be used to transmit user data to the COM interface, i.e. to configure the application.

TAINY GMOD-Sx can set up GSM data connections (9.600 bps) and can also accept such calls. The setting up of GSM data connections (MOC) requires that the application connected to the TAINY GMOD-Sx's COM port, issues AT commands. Incoming calls can be answered automatically (auto-answer) or the application issues AT commands.

For GSM modem calls to and from the COM interface no TCP/IP protocol is used – also refer to ***PPP (Point to Point Protocol)*** , page 81.

3 Operating requirements

3.1 GPRS subscriber contract

To be able to use the TAINY GMOD-Sx...

Use of the TAINY GMOD-Sx requires:

- subscriber contract with a GSM network operator (e.g. T-Mobile, Vodafone, E-Plus, O2) that supports GPRS
- release of the GPRS for the user in question by the network operator

3.2 GPRS: Fixed / known IP address of the communication partner (TAINY SwitchingCenter / ModemServer or TAINY ComPortServer)

In order that a TAINY GMOD-Sx can actively establish a GPRS connection to a remote communication partner – The TAINY SwitchingCenter (TSC), TAINY ModemServer (TMS) or the TAINY ComPortServer – this partner must have a fixed IP address. There are three ways of obtaining a fixed IP address:

Fixed IP address via dedicated line	The communication partner is connected to the GPRS network via a leased dedicated line. In this case it has normally been assigned a fixed IP address by the network operator. (An IP address consists of 4 numbers, separated by full stops, which can each have up to three digits, e.g. 2255.122.201.005).
Fixed IP address via Internet service provider	The communication partner can be accessed via the Internet and has been assigned a fixed IP address by the Internet service provider (the address can be applied for from some Internet service providers).
Fixed IP address via DynamicDNS provider	The communication partner can be accessed via the Internet and is assigned dynamic IP addresses but he is registered with a DynamicDNS provider (DNS = Domain Name Server). Thus, he has a fixed name (URL = Uniform Resource Locator) in URL format (see *DynamicDNS* providers on page 79).

4 The interfaces COM und COM2

4.1 The interface COM of the TAINY GMOD-Sx

For the application

For the application to be connected (e.g. machine, vending machine, sensor, computer) the TAINY GMOD-Sx offers a V.24/V.28 interface. Any application can be connected to this COM interface using a V.24 cable as long as it transmits the data serially.

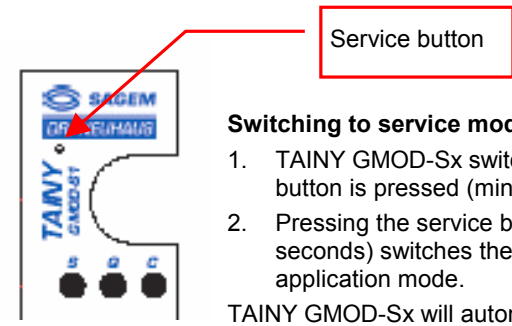
If the application has a different interface, e.g. CAN, Ethernet or a different industry bus, a commercially available interface converter can be connected between it and the .

For service of the device

For configuration and maintenance, the TAINY GMOD-Sx requires to be connected to a PC (instead of to the application) via its interface COM. On this PC, the configuration program for the TAINY GMOD-Sx has to be installed and has to be executed.

In order to be able to recognise the configuration and service commands coming from the PC, the TAINY GMOD-Sx has to be switched into service mode by pressing the service button.

The service button is located in a recess on the front of the housing. For pressing the service button, use a pointed object, e.g. a bent open paper-clip.



Switching to service mode and back

1. TAINY GMOD-Sx switches to service mode when the service button is pressed (min. 1 second, max. 3 seconds)
2. Pressing the service button again (min. 1 second, max. 3 seconds) switches the TAINY GMOD-Sx back to the normal application mode.

TAINY GMOD-Sx will automatically switch back to application mode after a time period of 20 minutes, if it is not switched back manually.

The service mode is indicated by a slow blinking of the three LEDs.

4.2 The interface COM2 of the TAINY GMOD-S2

For a second application for accepting incoming GSM modem calls

TAINY GMOD-S2 is equipped with a second serial interface, marked COM2. A second application (e.g. machine, vending machine, sensor, computer) can be connected to this COM2 via serial cable (RJ45 <-> DB9) as long as it transmits the data serially.

This interface COM2 exclusively serves the purpose of accepting GSM data calls from other modems in the GSM or analogue network.

Incoming calls can be answered automatically (auto-answer) or the application issues AT commands.

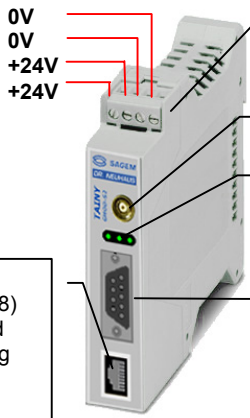
➲ Please note that an existing GPRS connection will be interrupted when a GSM data call comes in. If, for example, application 1 / process 1 is connected to the TAINY SwitchingCenter via GPRS, this connection will be interrupted when a GSM data call comes in. (Please also see configuration pages **Application**, **CSD Transparent** and Service.)

5 Putting the Device Into Operation

To put the device into operation perform the following steps:

		Page
1.	Insert the SIM card into the device	17
2.	Connect the device	21
3.	Prepare the configuration of the TAINY GMOD-Sx: On the service PC execute the installation program *install.exe* Reason: To be able to configure the TAINY GMOD-Sx the configuration program must be installed on the PC which you wish to use for this purpose and which you connect to the service interface of the TAINY GMOD-Sx. To install this program execute the installation program *install.exe* which can be found on the CD supplied with the device. When this program is executed • the driver for the interface to the TAINY GMOD-Sx in service mode is installed on the PC, • a dial-up connection is created in order that the PC can communicate with the TAINY GMOD-Sx via the installed driver, • and the configuration program **TAINY GMOD-SxConfig** is installed on the PC.	22
4.	Configure the TAINY GMOD-Sx Reconfiguration must also be performed if you change your application, the operating mode or configuration or connection conditions.	37

Connectors and LEDs



Connectors for supply voltage
24 V DC voltage (nominal)

Antenna

LEDs: S (Status)
Q (Quality)
C (Connect)

TAINY GMOD-S2
COM2 (RJ45, V.24/V.28)
For connection of a 2nd application for accepting incoming GSM modem calls (CSD 9.600 bit/s)

COM (RS232)
For connection of the application
OR
or the service PC

5.1 Overview of the Functions of the LEDs

The device is equipped with 3 LEDs which indicate the status:

S (Status) **Q** (Quality) **C** (Connect)

LED	Status	Meaning
S, Q, C combined	Fast lighting in sequence	Boot procedure
	Synchronous slow blinking	Service mode
	Slow lighting in sequence	Update
	Synchronous fast blinking	Error
S (Status)	Blinks slowly	Device waiting for PIN input
	Blinks fast	PIN error / SIM error
	OFF	No GPRS attach
	ON	GPRS attach
Q (Quality)	Blinks slowly	Booking into GSM network
	1x intermittent blinking	Field strength not sufficient
	2x intermittent blinking	Field strength sufficient
	3x intermittent blinking	Field strength medium
	ON permanently	Field strength high
	OFF	Waiting for PIN input
C (Connect)	OFF	No connection to server (TSC/TMS, CPS)
	Blinks slowly	Connection to server
	ON	Connection to remote station
	Blinks synchronously to data stream	Data transfer

5.2 Step1: Inserting or changing the SIM card

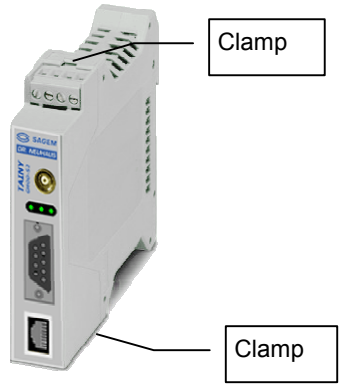
➲ The device must be switched off when you insert or change the SIM card.

➲ A plug-in SIM card (3 V) is used.

1. Make sure that the device is disconnected from the supply voltage.

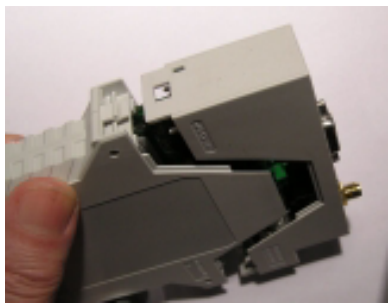
2. The TAINY GMOD-Sx must be opened to insert the SIM card.

   The housing is fastened by two clamps, one on top of the housing and one on the bottom side.

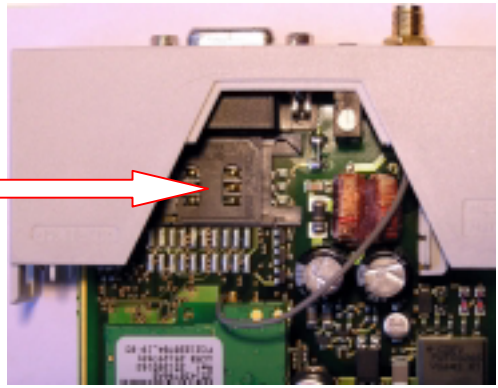


3. With a suitable object press one of the clamps cautiously (see picture) so that the catch opens.

4. Remove the rear section of the housing.



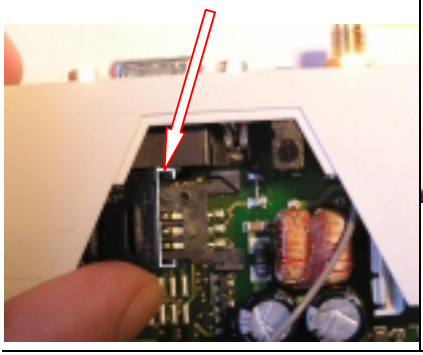
5. The SIM card holder is visible on the motherboard.

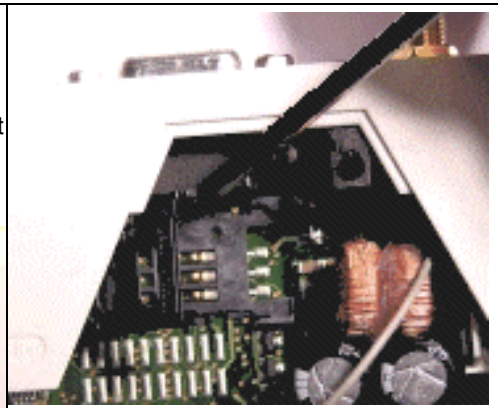


6. With a suitable object open the flap of the SIM card holder by moving it cautiously about 2 mm to the left - in the direction of the arrow (see red arrow in the illustration) so that it can be raised.

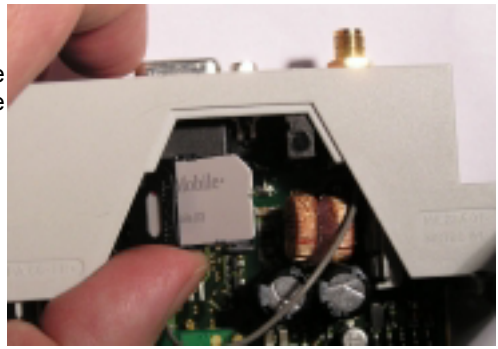
7. Raise the flap of the SIM card holder so that you can insert the SIM card.

   In the illustration below, the compartment into which you can insert the SIM card is emphasized in white.





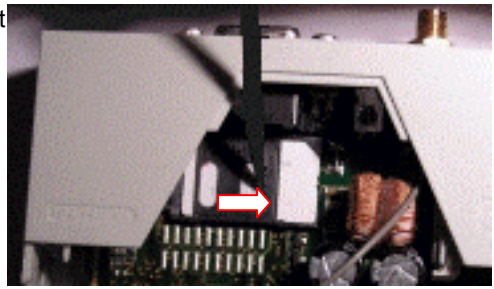
8. Slide the SIM card into the flap of the SIM card holder, with the gold-coloured microchip pointing down. The flap has a groove for this purpose. The notched corner of the SIM card has to point towards the front of the device (see illustration).



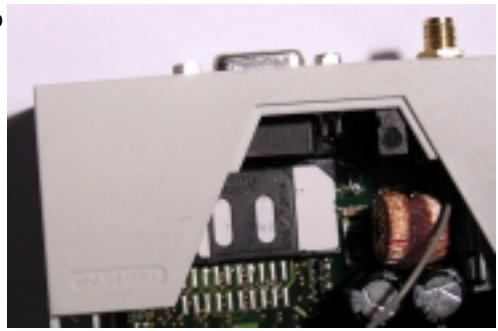
9. Slide the SIM card down into the flap as far as possible.

10. Lower the flap paying attention to the notched corner of the SIM card (see illustration).

11. With your fingernail or a suitable object move the flap about 2 mm to the right (in the direction of the arrow) until you can feel it click into place.

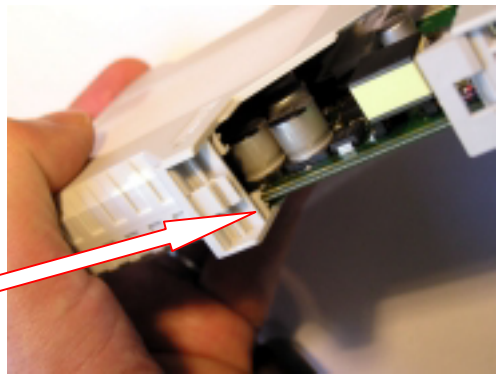


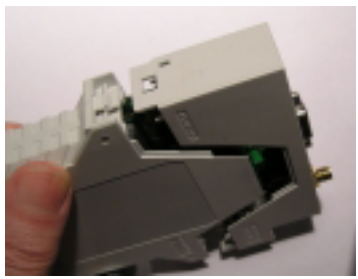
12. Now the SIM card holder is locked into position.



13. Finally re-attach both housing parts: Slide the motherboard into the rails on top and bottom inside the rear section of the housing. Close the housing by slightly pressing both housing parts together so that the clamps on the upper and lower part of the housing engage.

    The housing is locked when both clamps have clicked shut.





5.3 Step2: Connecting the device and switching the device on

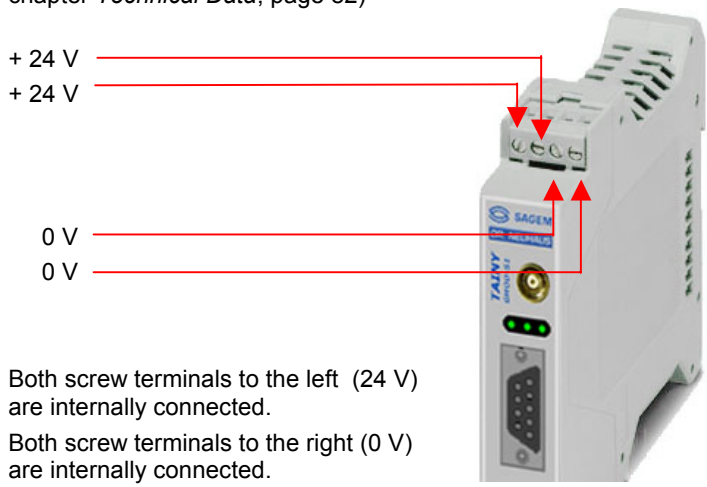
Antenna

The antenna connector – SMA socket - is situated on the upper part of the front.

Impedance recommended: approx. 50 Ohm

Connectors for current supply

The screw terminals on the top of the device are for connecting the current supply:
24 V DC voltage (nominal), $I_{typ.}$ 260mA@24V. (Please also refer to chapter *Technical Data*, page 82)



Both screw terminals to the left (24 V) are internally connected.

Both screw terminals to the right (0 V) are internally connected.

Switching on

The devices switches on as soon as the operating voltage is supplied.

Serial interface COM

- **For configuration and service:**

  Connect the service PC via its serial interface (COM port). To connect, use a V.24 cable.

OR

- **For data transmission:**

  Connect the application (e.g. machine, vending machine, sensor, computer) with the interface COM of the TAINY GMOD-Sx. To connect, use a V.24 cable.

  If the application has a different interface, e.g. CAN, Ethernet or a different industry bus, a commercially available interface converter can be connected between it and the TAINY GMOD-Sx.

Serial interface COM2 (TAINY GMOD-S2)

- **For data transmission:**

You can connect a second application (e.g. machine, vending machine, sensor, computer) to the interface COM2 of the TAINY GMOD-S2. To connect, use a serial cable (RJ45<->DB9, max. length of cable <3m).

➲ This interface COM2 exclusively serves the purpose of accepting GSM data calls (CSD 9.600 bps, without TCP/IP protocol) from other modems in the GSM or analogue network.

Top-hat rail mounting

The TAINY GMOD-Sx is suitable for top-hat rail mounting on DIN EN 50022 rails. A corresponding bracket can be found at the rear of the device.

5.4 Step 3: Prepare the Configuration

To configure the TAINY GMOD-Sx you use the installation program TAINY GMOD-SxConfig. You must first install this program on the PC which – for configuring and servicing the device - you connect to the COM interface of the TAINY GMOD-Sx.

Execute the installation program install.exe

To do this proceed as follows:

1. Insert the CD into the CD-ROM or DVD drive.
   When the CD has started, click on **Configuration Software**.
2. If the installation program install.exe on the CD does not start automatically then start it manually as follows:

under

Windows 2000

Windows XP

1. Click on Start, Run….
1. Click on the **Browse** button, switch to the drive where the CD is inserted**.**
2. Switch to the subdirectory **ConfigTool.**
3. Double-click on the program name **install.exe**

Effect:

The installation program install.exe is executed.

- The driver used to connect to the TAINY GMOD-Sx in service mode is installed on the PC,
- a dial-up connection is created in order that the PC can communicate with the TAINY GMOD-Sx via the installed driver,
- and the configuration program TAINY GMOD-SxConfig is installed on the PC.

During the installation process Windows installation routines are called up. These prompt you for some information. The process differs slightly depending on which version of Windows you use and the dialogs which are displayed are slightly different.

The following instructions show dialogues that are displayed when doing the installation process on a computer running the operating systems:

- Windows 2000 → page 24
- Windows XP → page 30

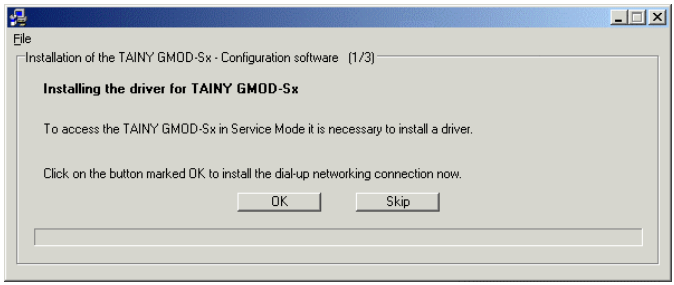
Follow the instructions on the screen and the instructions below in this manual.

Windows 2000: Install the driver for access to the TAINY GMOD-Sx in service mode

You must be logged on under Windows 2000 as an **administrator**. Please also make sure that no other modem drivers are installed for the interface selected.

If the PC is installed in a network make sure that you have the necessary access rights.

1. When the installation program install.exe is started the following dialog appears:


File
Installation of the TAINY GMOD-Sx - Configuration software (1/3)
Installing the driver for TAINY GMOD-Sx
To access the TAINY GMOD-Sx in Service Mode it is necessary to install a driver.
Click on the button marked OK to install the dial-up networking connection now.
OK
Skip

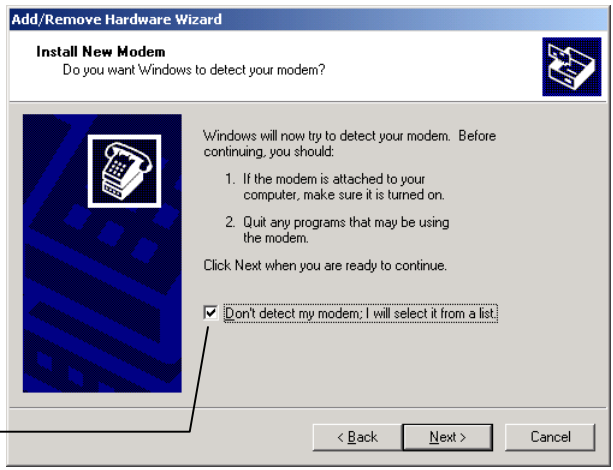
Click on **OK**.

Effect: The *Telephone and modem options* dialog appears.

2. In the *Telephone and modem options* dialog switch to the *Modems* tab and click on the **Add...** button there.

Effect: The *Hardware Wizard* starts.

3.

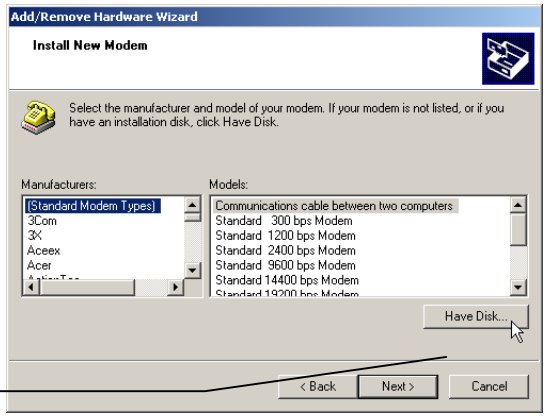

Add/Remove Hardware Wizard
Install New Modem
Do you want Windows to detect your modem?
Windows will now try to detect your modem. Before continuing, you should:
1. If the modem is attached to your computer, make sure it is turned on.
2. Quit any programs that may be using the modem.
Click Next when you are ready to continue.
Don't detect my modem; I will select it from a list.
< Back
Next >
Cancel

Set check mark

1. Activate **Don't detect my modem; I will select it from a list**.
2. Click on **Next >**.

Windows 2000: Driver installation

4. The next dialog allows you to install a driver manually:



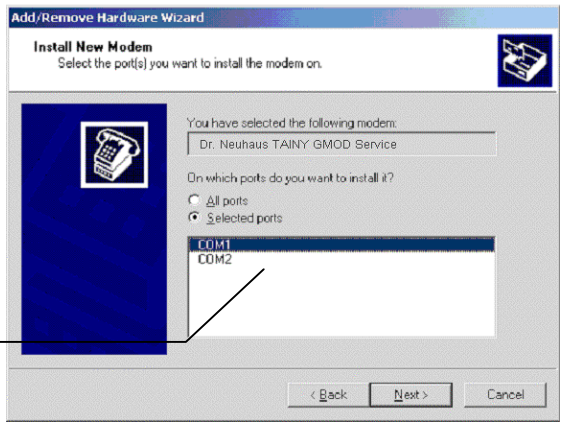
Click on **Have Disk...**

Click on the **Have disk...** button

5. In the dialog which follows:
   1. Click on **Browse...**.
   2. Switch to the *Drivers* folder on the inserted CD to install the driver file **TAINY_GMODService.INF** from there.

6. When prompted to select the model,
   select **Dr. Neuhaus TAINY GMOD Service**.
   Then click on **Next >.**

7. The dialog for selecting the connection appears:



Select the COM port

   1. Select the COM port to which you have connected the cable to the service interface of the TAINY GMOD-Sx.
   2. Click on **Next >**

Windows 2000: Driver installation

8. Follow the instructions on the screen.

   Please **Continue** the installation, when Microsoft warns you about the missing Digital Signature for the Dr. Neuhaus driver.

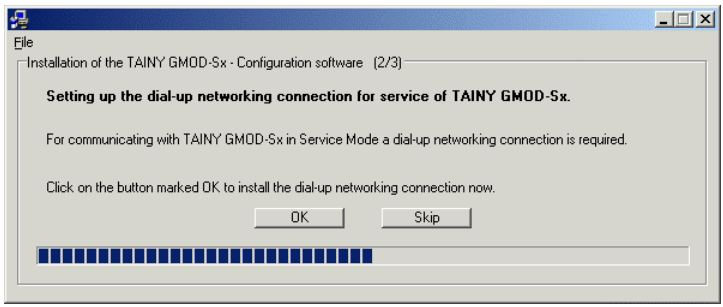
9. When the *Add Hardware Wizard* displays the message that the “Modem installation is finished!” and that “Your modem has been set up successfully”, click on **Finish.** The driver is then added to the list of installed modems.

   Effect:

   The (modem) driver is now ready to operate.

   Close the dialog and continue.

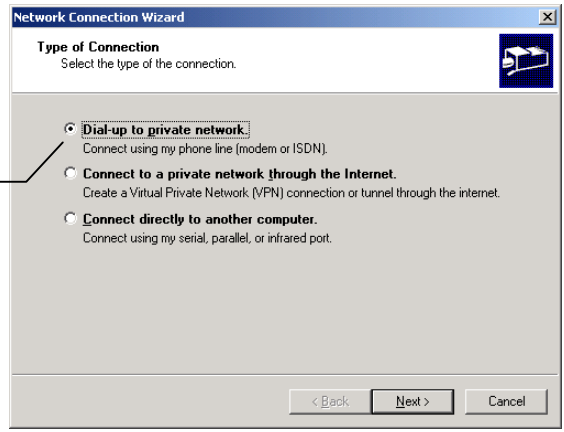
Windows 2000: Create the dial-up connection


File
Installation of the TAINY GMOD-Sx - Configuration software (2/3)
Setting up the dial-up networking connection for service of TAINY GMOD-Sx.
For communicating with TAINY GMOD-Sx in Service Mode a dial-up networking connection is required.
Click on the button marked OK to install the dial-up networking connection now.
OK
Skip

Click on **OK** to create the necessary dial-up connection in which the connection data will be stored.

Windows 2000: Dial-up connection

1. The Network Connection Wizard is started and displays this dialog:


Network Connection Wizard
Type of Connection
Select the type of the connection.
Dial-up to private network
Connect using my phone line (modem or ISDN).
Connect to a private network through the Internet.
Create a Virtual Private Network (VPN) connection or tunnel through the internet.
Connect directly to another computer.
Connect using my serial, parallel, or infrared port.
< Back
Next >
Cancel

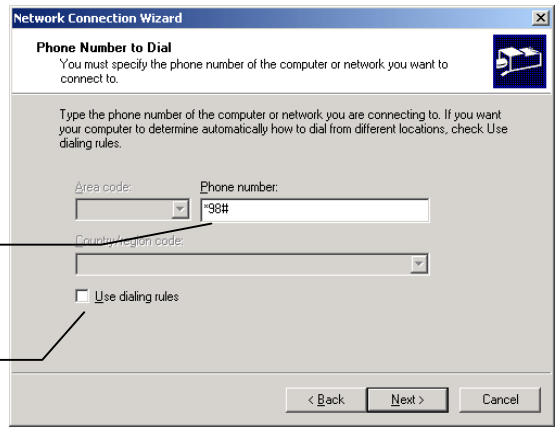
select

1. Select the option **Dial into a private network**.
2. Click on **Next >**

Windows 2000: Dial-up connection

2. You may be asked to select the desired device (modem).
   1. In the list of modems select **Dr. Neuhaus TAINY GMOD Service**.
   2. Click on **Next >**

3.


Network Connection Wizard
Phone Number to Dial
You must specify the phone number of the computer or network you want to connect to.
Type the phone number of the computer or network you are connecting to. If you want your computer to determine automatically how to dial from different locations, check Use dialing rules.
Area code:
Phone number:
*98#
Country/region code:
Use dialing rules
< Back
Next >
Cancel

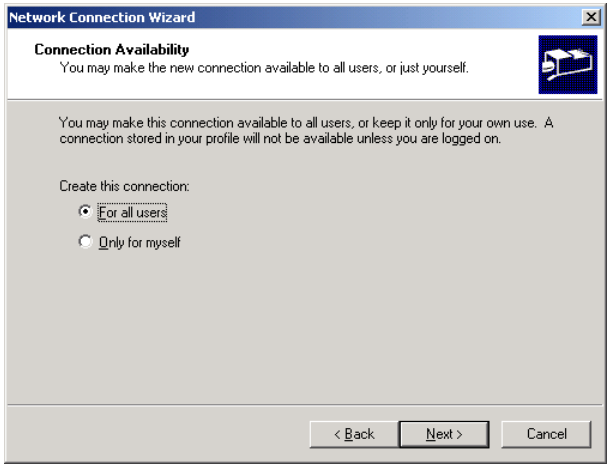
***98#**

No check mark!

1. Enter the following number: ***98#**
   (= asterisk, 9, 8, hash symbol)
2. Remove the check mark in front of *Use area code and dialling parameters*.
3. Click on **Next >**

Windows 2000: Dial-up connection

4.

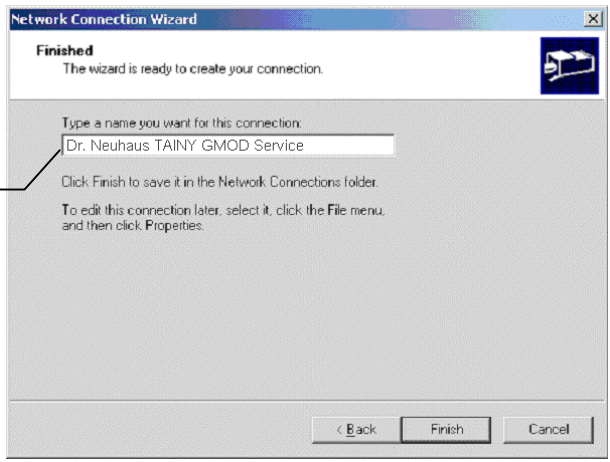

Network Connection Wizard
Connection Availability
You may make the new connection available to all users, or just yourself.
You may make this connection available to all users, or keep it only for your own use. A connection stored in your profile will not be available unless you are logged on.
Create this connection:
For all users
Only for myself
< Back
Next >
Cancel

1. Specify who is allowed to use the connection.
2. Click on **Next >**

5. You may be asked to activate the shared use of the internet connection. In this case select your appropriate setting.
   Click on **Next >**

Windows 2000: Dial-up connection

6.


Network Connection Wizard
Finished
The wizard is ready to create your connection.
Type a name you want for this connection:
Dr. Neuhaus TAINY GMOD Service
Click Finish to save it in the Network Connections folder.
To edit this connection later, select it, click the File menu, and then click Properties.
< Back
Finish
Cancel

Enter a name for the connection

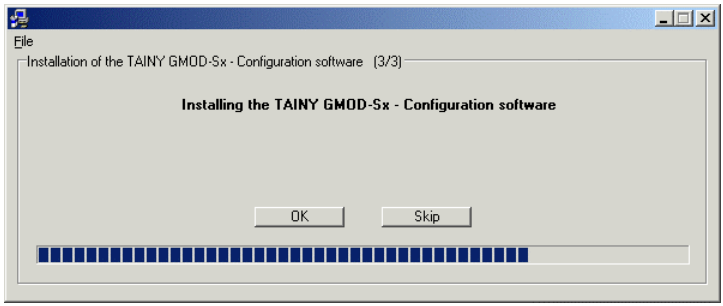
1. Enter a name for the connection:
   Dr. Neuhaus TAINY GMOD-Sx Service
2. Click on **Finish >**.

The dial-up connection for service of the TAINY GMOD-Sx has now been created.

The connection is now listed in the *Network and Dial-Up connections* dialog.

Close the dialog and continue.

Windows 2000: Install the configuration program TAINY GMOD-SxConfig



Click on **OK** to install the configuration program TAINY GMOD-SxConfig.

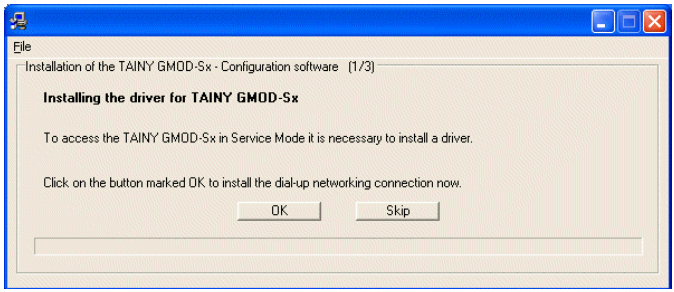
Follow the instructions on the screen.

Windows XP: Install the driver for connecting to the TAINY GMOD-Sx in service mode

You must be logged on under Windows XP as an **administrator**. Please also make sure that no other modem drivers are installed for the interface selected.

If the PC is installed in a network make sure that you have the necessary access rights.

1. When the installation program install.exe is started the following dialog appears:


File
Installation of the TAINY GMOD-Sx - Configuration software (1/3)
Installing the driver for TAINY GMOD-Sx
To access the TAINY GMOD-Sx in Service Mode it is necessary to install a driver.
Click on the button marked OK to install the dial-up networking connection now.
OK
Skip

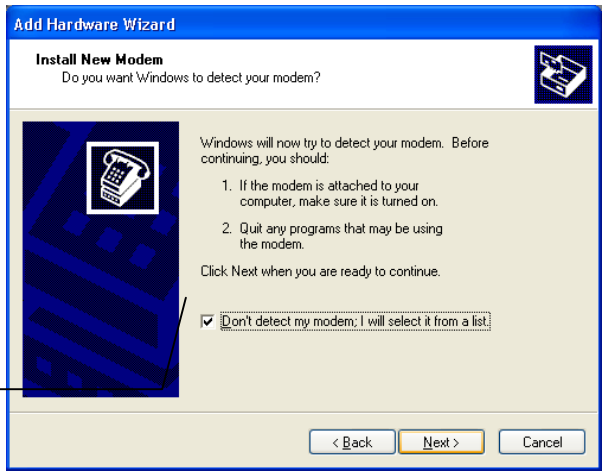
Click on **OK**.

Effect: The *Telephone and modem options* dialog appears.

2. In the *Telephone and modem options* dialog switch to the *Modems* tab and click on the **Add...** button there.

Effect: The *Hardware Wizard* starts.

3.

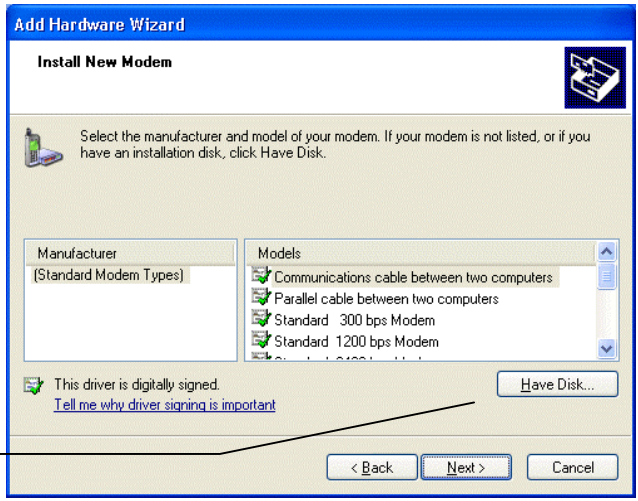

Add Hardware Wizard
Install New Modem
Do you want Windows to detect your modem?
Windows will now try to detect your modem. Before continuing, you should:
1. If the modem is attached to your computer, make sure it is turned on.
2. Quit any programs that may be using the modem.
Click Next when you are ready to continue.
Don't detect my modem; I will select it from a list.
< Back
Next >
Cancel

Set check mark

1. Activate **Don't detect my modem; I will select it from a list**.
2. Click on **Next >**.

Windows XP: Driver installation

4. The next dialog allows you to install a driver manually:


Add Hardware Wizard
Install New Modem
Select the manufacturer and model of your modem. If your modem is not listed, or if you have an installation disk, click Have Disk.
Manufacturer
(Standard Modem Types)
Models
Communications cable between two computers
Parallel cable between two computers
Standard 300 bps Modem
Standard 1200 bps Modem
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

Datenträger... klicken

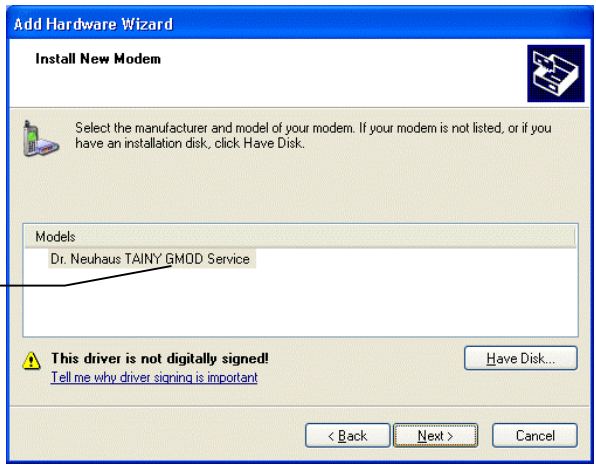
Click on the **Have disk...** button.

5. In the dialog which follows:

   1. Click on **Browse...**.

   2. Switch to the *Drivers* folder on the inserted CD to install the driver file **TAINY_GMODService.INF** from there.

6. The following dialog appears:


Add Hardware Wizard
Install New Modem
Select the manufacturer and model of your modem. If your modem is not listed, or if you have an installation disk, click Have Disk.
Models
Dr. Neuhaus TAINY GMOD Service
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

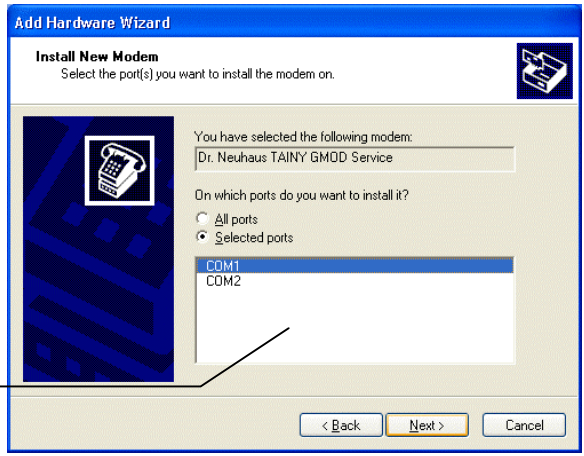
Select driver

Select **Dr. Neuhaus TAINY GMOD Service**.

Then click on **Next >**

Windows XP: Driver installation

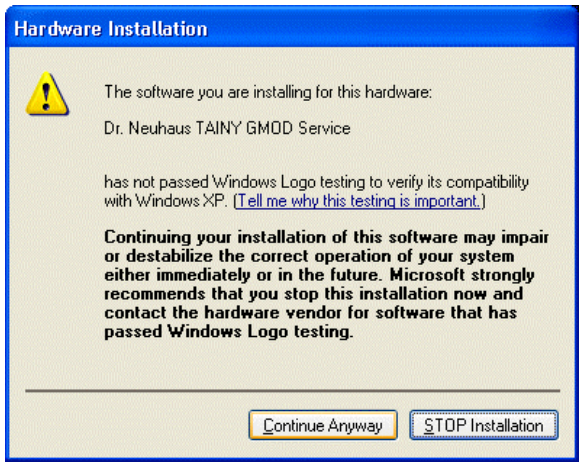
7. The dialog for selecting the connection appears:



Select the COM port

1. Select the COM port to which you have connected the cable to the service interface of the TAINY GMOD-Sx.
2. Click on **Next >**

8. When the following dialog box appears:


Hardware Installation
The software you are installing for this hardware:
Dr. Neuhaus TAINY GMOD Service
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Click on **Continue Anyway.**

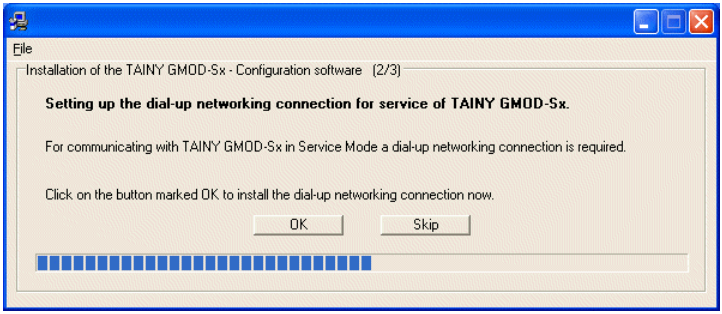
Effect:

The driver is added to the list of installed modems.

Click on **Finish**.

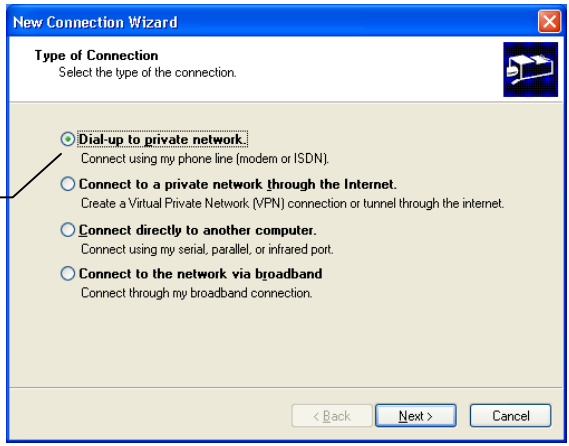
The modem driver is then ready to operate. Close the dialog box and continue.

Windows XP: Create the dial-up connection


File
Installation of the TAINY GMOD-Sx - Configuration software (2/3)
Setting up the dial-up networking connection for service of TAINY GMOD-Sx.
For communicating with TAINY GMOD-Sx in Service Mode a dial-up networking connection is required.
Click on the button marked OK to install the dial-up networking connection now.
OK
Skip

Click on **OK** to create the necessary dial-up connection in which the connection data will be stored.

1. The *New Connection Wizard* is started.

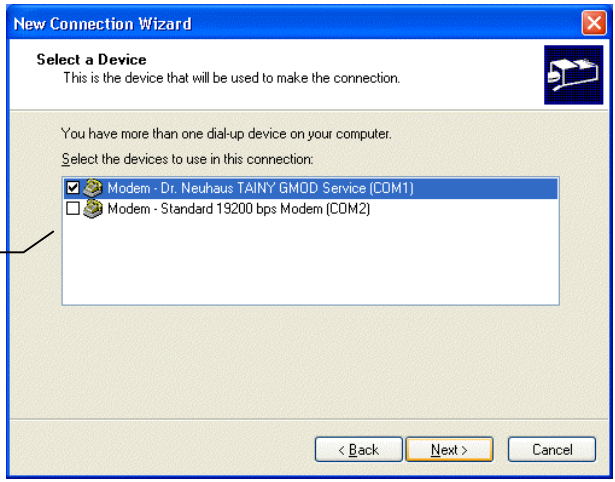

New Connection Wizard
Type of Connection
Select the type of the connection.
Dial-up to private network
Connect using my phone line (modem or ISDN).
Connect to a private network through the Internet.
Create a Virtual Private Network (VPN) connection or tunnel through the internet.
Connect directly to another computer.
Connect using my serial, parallel, or infrared port.
Connect to the network via broadband
Connect through my broadband connection.
< Back
Next >
Cancel

Select **Dial into a private network**

1. Select the option **Dial-up to private network**.
2. Click on **Next >**

Windows XP: Create the dial-up connection

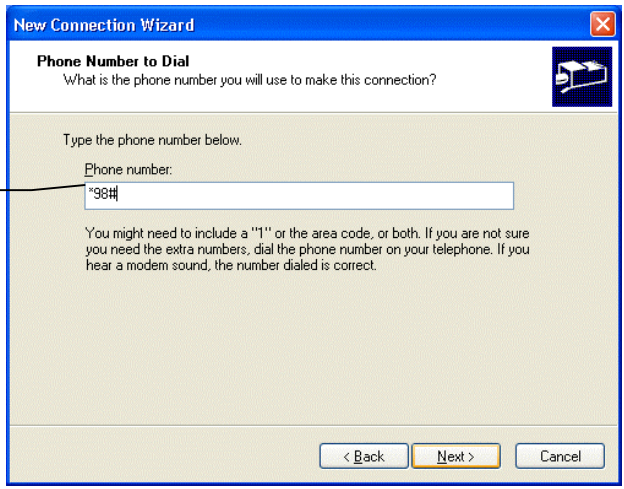
2. You may be asked to select the desired device (modem).


New Connection Wizard
Select a Device
This is the device that will be used to make the connection.
You have more than one dial-up device on your computer.
Select the devices to use in this connection:
Modem - Dr. Neuhaus TAINY GMOD Service (COM1)
Modem - Standard 19200 bps Modem (COM2)
< Back
Next >
Cancel

Dr. Neuhaus TAINY GMOD Service auswählen

In the list of modems select **Dr. Neuhaus TAINY GMOD Service**.

3.

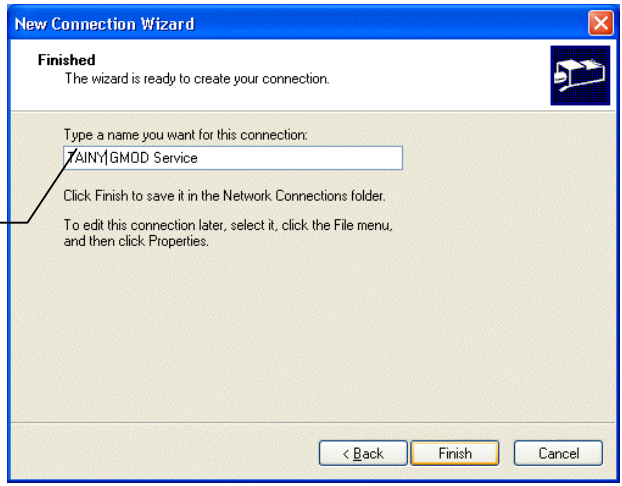

New Connection Wizard
Phone Number to Dial
What is the phone number you will use to make this connection?
Type the phone number below.
Phone number:
*98#
You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.
< Back
Next >
Cancel

***98#**

Enter the following number: ***98#**
(=asterisk, 98, hash symbol)

Then click on **Next >**

4.


New Connection Wizard
Finished
The wizard is ready to create your connection.
Type a name you want for this connection:
TAINY GMOD Service
Click Finish to save it in the Network Connections folder.
To edit this connection later, select it, click the File menu, and then click Properties.
< Back
Finish
Cancel

Enter a name for the connection: **TAINY GMOD Service**

Enter a name for the connection, e.g.: TAINY GMOD Service

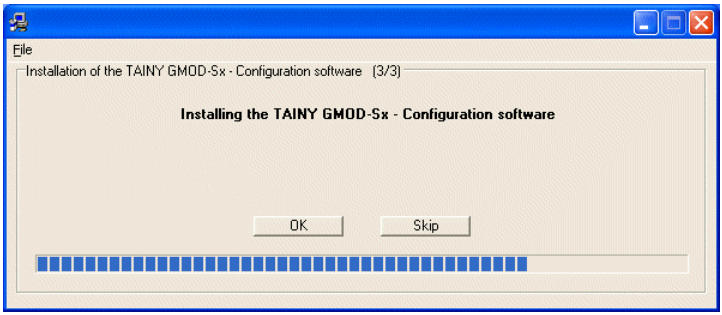
5. When you click on **Finish** you end the process of creating the dial-up connection.

The dial-up connection for service of the TAINY GMOD-Sx has now been created.

The connection is now listed in the *Network Connections* dialog.

Close the dialog and continue.

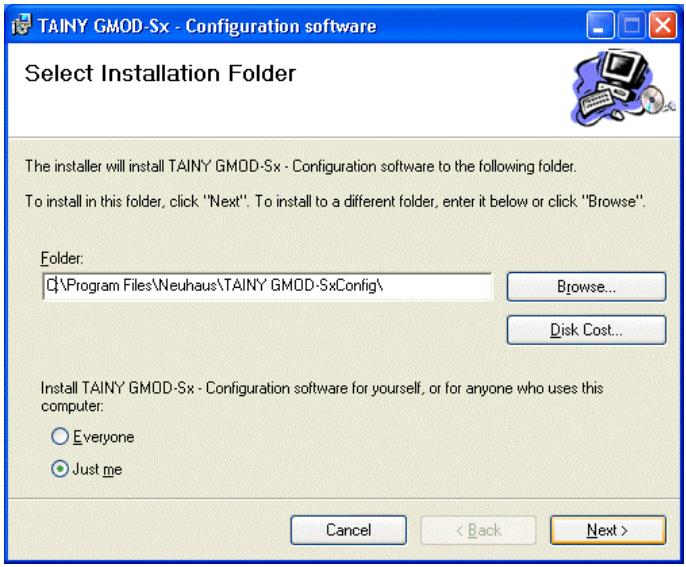
Windows XP: Install the configuration program TAINY GMOD-SxConfig



Click on **OK** to install the configuration program **TAINY GMOD-SxConfig**.

Follow the instructions on the screen.

1. The following dialog box appears:


TAINY GMOD-Sx - Configuration software
Select Installation Folder
The installer will install TAINY GMOD-Sx - Configuration software to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\Neuhaus\TAINY GMOD-SxConfig\
Browse...
Disk Cost...
Install TAINY GMOD-Sx - Configuration software for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

Select the appropriate settings **Next >**.

2. In the following dialog click on **Next >** , and finish the installation by clicking on **Close** in the last dialog box.

6 Configuring the TAINY GMOD-Sx

Procedure

During the configuration a variety of configuration data must be selected or entered. To make sure that you have this information at hand during the configuration the best way to proceed is as follows:

1. First collect and note down the configuration data using the configuration table (see page 38 ff).
2. Only when you have completely filled in the configuration table should you perform the actual configuration. You configure the TAINY GMOD-Sx using the configuration program *TAINY GMOD-SxConfig* – see below.

Remote configuration

The TAINY GMOD-Sx may be configured from a remote station – see *Remote configuration* on page 69.

6.1 Performing the Configuration locally

Prerequisites

- The service PC is connected to the interface COM of the TAINY GMOD-Sx.
- The configuration program *TAINY GMOD-SxConfig* is installed on the service PC and the following have been installed
  - the driver for connecting to the TAINY GMOD-Sx in service mode.
  - the dial-up connection for service of the device.
- You have filled in the configuration table (page 38 ff.) so that you have the necessary configuration data at hand.

Executing the configuration program

To do this proceed as follows:

1. Switch the TAINY GMOD-Sx to service mode by pressing the service button for a minimum of 1 second but no longer than 3 seconds

   ➲ The LEDs S, Q and C blinking slowly and synchronously indicate that the TAINY GMOD-Sx is operating in service mode.

2. Execute the configuration program. Start it as follows insofar as the specifications have been taken over during installation of this program:

   Menu **Start, Programs, Neuhaus, TAINY GMOD-Sx, TAINY GMOD-SxConfig**

3. In the **Parameters** menu click on **Read parameters from GMOD-Sx**.

   Effect:

   The program loads the parameter file para.ini from the TAINY GMOD-Sx into the PC and displays the configured parameters.

When configuring for the first time:

In the *Settings* tab enter **service** for both the user name and the password

4. Specify the applicable parameters on the settings tabs, orienting yourself to your notes in the parameter table – see on page 38.

   Important: If you change the user name and the password for the service interface of the TAINY GMOD-Sx then in all cases observe the instructions for this on page 66.

5. In the **Parameters** menu click on **Store parameters to GMOD-Sx**.

   Effect:

   The configuration program transfers the parameter file para.ini back into the TAINY GMOD-Sx.

   ➲ In order to store the parameters to the device, the TAINY GMOD-Sx has to operate in service mode.

6 Switch the TAINY GMOD-Sx back to normal operating/application mode by pressing the service button again (more than 1 second, max. 3 seconds).

➲ You can correct incorrect parameter inputs by resetting the input. To do this, click on **Set parameters to default** in the **Parameters** menu before setting the parameters

* Experienced users can also edit the parameter file para.ini using a text editor (for pure ASCII text) such as the Windows Editor (supplied with Windows). To do this proceed as follows:

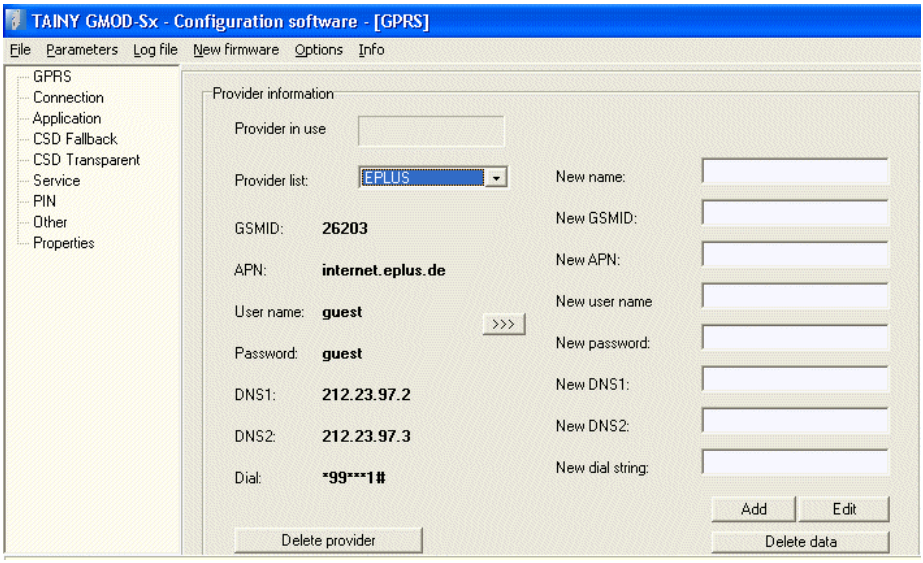
1. Press the service button of the TAINY GMOD-Sx in order to switch the device to service mode.
2. Start the dial-up connection to the service interface
2. Using an FTP program (which can be downloaded as freeware from the Internet) create the connection to the TAINY GMOD-Sx.
   FTP address: 192.168.0.8
   User name (in accordance with the setting made in the factory): service
   Password (in accordance with the setting made in the factory): service
3. Download the file para.ini.
4. Edit the file para.ini using the text editor.
5. Make sure that the TAINY GMOD-Sx is switched to service mode. Re-establish the connection to the TAINY GMOD-Sx using the FTP program and upload the file para.ini again into the TAINY GMOD-Sx.
6. Again press the service button of the TAINY GMOD-Sx to switch the device back to normal operating/application mode.

6.2 The Configuration Table

On the following pages the configuration programs different tables are listed. In the respective tables below your will find an explanation of the different parameters and, additionally, space for you to note down the configuration data required for your application.

When noting down the data please pay particular care to the appropriate spelling.

In the left column “Parameter” is indicated where (section) and under which designation this parameter is listed internally in the *para.ini* file. Section names are displayed in square brackets , e.g. [GPRS_CONFIG].



GPRS tab — Designates the connection via which the TAINY GMOD-Sx shall communicate.

Parameter	Explanation, configuration options
	Designates the connection via which the TAINY GMOD-Sx shall communicate. The connection data are explained below. *Provider in use:* DISPLAY ONLY The provider used is automatically selected by TAINY GMOD-Sx. For this, the provider has to be listed in the Provider List. If your provider has not yet been included in the Provider List, his GSMID is displayed and you are requested to edit the Provider List.

Parameter	Explanation, configuration options

The *Provider List* lists the leading GPRS service providers in Germany. If your provider is included in the *Provider List* but could not be displayed (e.g. the SIM card has not yet been inserted, the PIN has not been set, etc.), simply select it. You will then receive all further connection data for this provider under the *Provider List*. You then need do nothing more on this tab.

If your provider is not listed or if provider data have changed must you enter the appropriate details in the column on the right. If only a few details need to be changed you can, after selecting a service provider in the *Provider List*, copy the connection data into the right column and then make only the necessary changes.

Example:

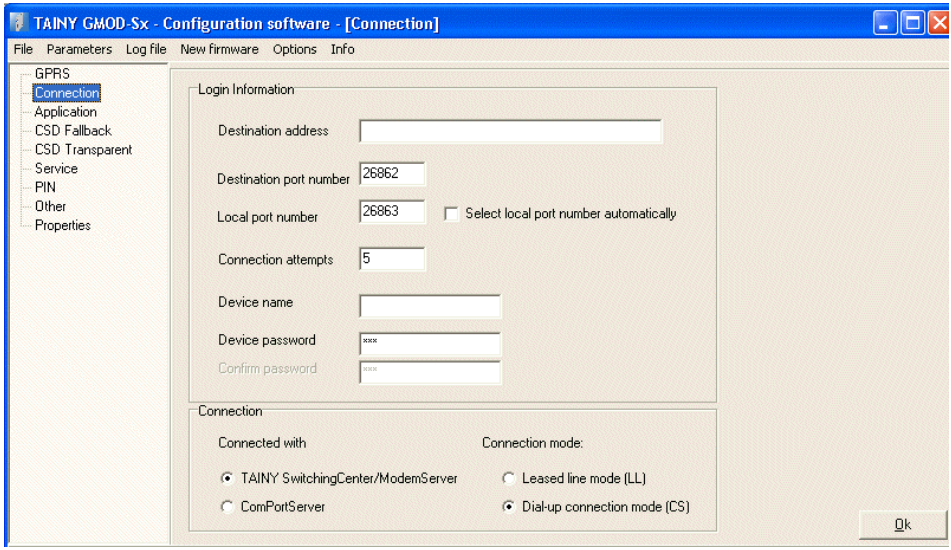
To specify a (new) user name and password for GPRS, proceed as follows:

1. Select your provider in the *Provider List*.
2. Click on the button **>>>** to copy his connection data into the right column.
3. Enter the user name into the field *New user name* and the password into the field *New password*.
4. Click on **Edit** so that the changes for this provider are stored and displayed on the left.

Buttons:

>>>	Copies the connection data on the left (under the *Provider List*) into the column on the right.
Add	Adds a further provider and its connection data to the internal provider list.
Edit	Changes the connection data displayed on the left according to your input on the right.
Delete data	Deletes all the data entered on the right, leaving the fields empty.
Delete provider	Deletes the provider selected from the *Provider List* from the internal provider list.

Parameter	Explanation, configuration options
[GPRS_CONFIG]	**Connection data:** **INFO:** Documentation from your network operator, its hotline or Internet site.
PROVIDER	New name:..... The provider name can be selected freely.
GSMNETID	New GSM ID:..... Each GSM/GPRS provider has a GSMID by which it is recognised worldwide. It must be absolutely correct.
PDP_CONTEXT	New APN:..... Access Point Name - APN. Name of the access point to the Internet, Intranet.
USER	New user name.....
PASSWORD	New password:..... When the TAINY GMOD-Sx establishes a connection into the GPRS network it is normally asked for the user name and password to gain access to the network. Some GSM/GPRS network operators do not implement access control using a user name and/or password. In this case do not set these parameters. Permissible characters for user name and password: all letters and digits, no spaces, no special characters, max. 30 characters
[GPRS_CONFIG]	
DNS1	New DNS1:.....
DNS2	New DNS2:..... (Domain Name Server 1 and 2) You must only enter the DNS addresses if the address of the server which the TAINY GMOD-Sx connects to (the TAINY SwitchingCenter/ModemServer or the TAINY ComPortServer) is given as the host name (= URL) on the page *Connection* (see page 42).
DIAL	New Dial String:..... (Standard: *99***1#) Dial string to dial into the GPRS network. Normally, it is always *99***1#.



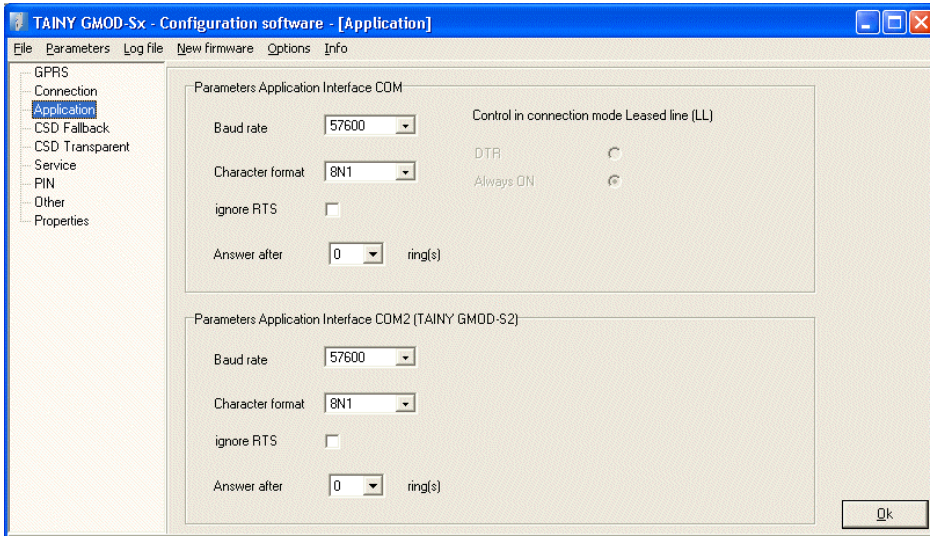
Connection tab — Specify how the TAINY GMOD-Sx shall connect to the communication partner (TSC/TMS, CPS)

Parameter	**Explanation, configuration options**
	For the following specifications please refer to the following sections in this manual: - GPRS/GSM connections with TCP/IP protocol, page 9. - GPRS: Fixed / known IP address of the communication partner (TAINY SwitchingCenter / ModemServer or TAINY ComPortServer), page 12.
[IP_CONFIG] IP	Destination address:..... Specify the address of the server with which the TAINY GMOD-Sx shall connect – as an IP address or as a host name in URL format. (When using the hostname, the Domain Name Servers have to be specified, **New DNS** on **GPRS** and **DNS** on the **CSD Fallback** tab. The server is either the • TAINY SwitchingCenter (TSC) / TAINY ModemServer (TMS) OR the • TAINY ComPortServer (CPS).

Parameter	Explanation, configuration options
DESTPORT	Destination port number:..... (Standard: 26862) The port specified here must correspond to the one via which the server communicates – TSC/TMS or TAINY ComPortServer. The port used by the server is set ex factory to 26862. Only if you know that a different number is set on the server for communication with the TAINY GMOD-Sx should you enter this different port number here. A port number higher than 20000 should be selected in any case in order to avoid selecting a port number already in use by other applications. See also RFC 1700 (RFC (= **R**equest **F**or **C**omments) denotes a numbered series of documents on Internet standards.) Max. value: 65535
SOURCEPORT	Local port number:..... (Default: Assign local port number automatically) Specifies the port via which the TAINY GMOD-Sx communicates. This port number should really only be changed if the firewall of the server on which the TSC/TMS or the TAINY ComPortServer is installed recommends doing so. Max. value: 65535 A port number higher than 20000 should be selected in any case in order to avoid selecting a port number already in use by other applications. See also RFC 1700 (RFC (= **R**equest **F**or **C**omments) denotes a numbered series of documents on Internet standards.)
CONNECT_ATTEMPTS	Connection attempts:..... (Default: 5) Defines the number of socket connection attempts made by the TAINY GMOD-Sx to establish a connection to the server. Permissible values: 1 to 999

Parameter	Explanation, configuration options
[SERVER] USER	Device name:..... The TAINY GMOD-Sx signifies its identity to the server with the device name and password (see below). The standard device name registered is the IMEI (**I**nternational **M**obile station **E**quipment **I**dentity), a number which uniquely identifies every mobile module worldwide. Only if the server requests another device name should you specify it here (max. 30 characters, all letters and digits, no spaces, no special characters).
[SERVER] PASSWORD	Device Password:..... Default: **PW0** The TAINY GMOD-Sx signifies its identity to the server with the device name (see above) and password. Only if the server requests another password should you specify it here (max. 30 characters, all letters and digits, no spaces, no special characters).
[SERVER]	CONNECTION:
MODE=TSC	Connect with: **O** TAINY SwitchingCenter / ModemServer OR
MODE=CPS	**O** TAINY ComPortServer Define to which kind of server this TAINY GMOD-Sx shall connect: TAINY SwitchingCenter / ModemServer (=TSC) ODER TAINY ComPortServer (=CPS). Please see GPRS/GSM connections with TCP/IP protocol, on page 9. If the TAINY GMOD-Sx shall connect to the TAINY SwitchingCenter / ModemServer you must also specify the connection mode:

Parameter	Explanation, configuration options
	Connection mode
LINE=LL	O Leased line mode (LL) If a connection shall be set up without control by the application or if the TAINY GMOD-Sx is controlled by the connected application by DTR, select the *Leased line mode (LL)*. This mode is supported by all three server types: TAINY SwitchingCenter, TAINY ModemServer and TAINY ComPortServer.
LINE=CS	O Dial-up connection mode (CS) If the TAINY GMOD-Sx is controlled by the connected application by AT commands (like a conventional modem) so that it can establish dial-up connections via the TAINY SwitchingCenter / TAINY ModemServer, select the *Dial-up connection mode (CS)*. In this dial-up connection mode, the device establishes the connection to the TAINY SwitchingCenter / ModemServer as soon as the operating voltage is applied. The “logical” connection to the respective TSC terminal device is established with an AT dial command. TAINY GMOD-Sx will release the logical connection after a timeout or when receiving “+++” followed by “ATH”. The physical connection to the TAINY SwitchingCenter / ModemServer will be continued. The AT commands supported in this mode are given in the section ***COM interface: AT commands supported in*** CS mode, page 78. ➲ Please note that data packets exchanged for setting up connections, reconnecting, connect attempts (e.g. Server switched off, wrong destination address, etc.) as well as keeping the connection alive are also subject to charge.



Application tab

Specify how the TAINY GMOD-Sx shall react to the application connected to its COM port.

Furthermore, define if the TAINY GMOD-Sx shall answer incoming calls which shall be routed to the application connected to the COM interface, automatically (auto-answer). See also configuration tab **CSD-Transparent**, page 55.

For TAINY GMOD-S2: Specify how the device shall communicate with the application connected to its interface COM2.

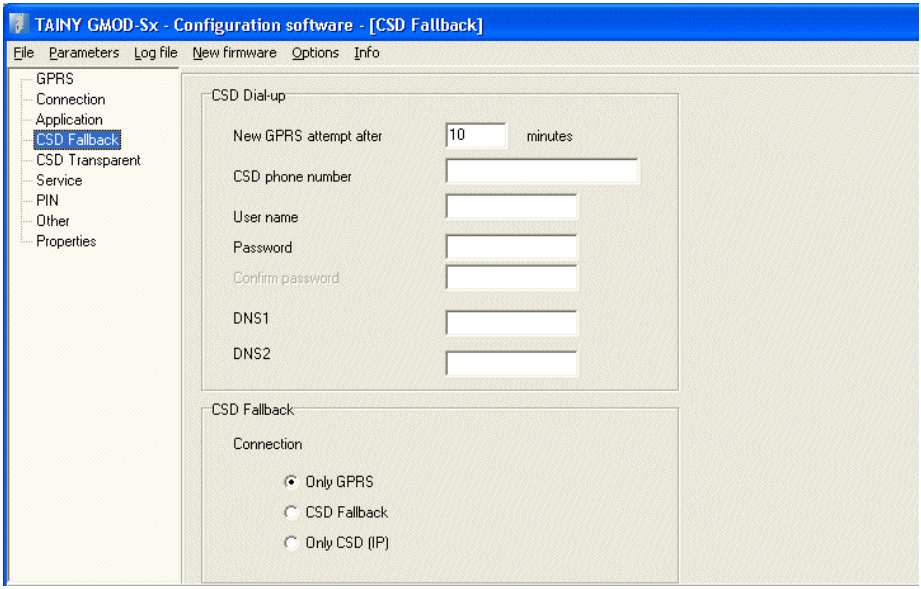
Parameter	**Explanation, configuration options**
[COM] BAUDRATE	Baud rate:..... (Default setting: 57600) This defines the speed with which the TAINY GMOD-Sx communicates with the application (e.g. machine, sensor, device) connected to its COM port. Permissible values: 300, 1200, 2400, 4800, 9600, 19200, 38400, and 57600. If you want to change the value use the selection list. ➲ The value set here must match the speed with which the connected application can communicate.

Parameter	Explanation, configuration options
[COM] FORMAT	Character format:..... Default: 8N1 (= 8 data bits, non parity, 1 stop bit) Defines the character format with which the TAINY GMOD-Sx communicates with the application connected to its COM port. Permissible values: 7N1, 8E1, 7E1, 8O1, 7O1, 8N2, 7N2, 8E2, 7E2, 8O2, 7O2, 8N1 If you want to change the value use the selection list. ➲ The character format defined here must match that used by the connected application.
[COM] IGNORE_RTS (YES or NO)	□Ignore RTS If during a data transmission one of the devices "can't keep up" it can notify this to the other involved device using the RTS signal. The other device can then temporarily stop the data flow. In this way a data overflow and thus loss of data are avoided. The TAINY GMOD-Sx is preset such that this type of flow control, referred to as *hardware handshake*, is completely activated, i.e.: Default for *Ignore RTS*: NO
[COM] CONTROL=DTR, or CONTROL=ALWAYS_ON	Control in connection mode Leased line (LL) ➲ The parameter setting ***DTR*** or ***Always On*** can only be selected if the connection mode **LL**(=leased line) is being used – see configuration tab **Connection** (page 42), *Connection mode* in section *Connected with*. ○ DTR ○ Always On This parameter specifies whether and how the TAINY GMOD-Sx is controlled by the connected application, in order to establish or maintain the connection to the server in leased line mode (LL). • If **DTR** is selected, the TAINY GMOD-Sx only establishes and terminates a connection to the communication partner when it receives a DTR signal from the application (e.g. vending machine, sensor, computer) connected to its COM port.

Parameter	Explanation, configuration options
	DTR: DTR (Data Terminal Ready) is a control signal which is generated by the connected terminal to indicate that it is operational, i.e. ready for data transmission. Meaning: DTR ON: establish the connection DTR OFF: terminate the connection • With the **Always On** setting any generated DTR or AT signals are ignored. As default the TAINY GMOD-Sx maintains a permanent connection to the communication partner. ➲ If the **TAINY SwitchingCenter / ModemServer** is selected in the *Connection mode* **Dial-up connection mode (CS)** under *Connect to* on the **Connection** tab, the control of the TAINY GMOD-Sx is set automatically to AT, i.e. the TAINY GMOD-Sx reacts to the AT commands it receives from the connected application. ➲ If the type of connection to the communication partner is only by mobile radio network dial-up (subject to charges) (only CSD (IP) operation – see CSD Fallback menu), the parameter setting **Always On** will result in astronomical charges. Se be careful! See **CSD Fallback** tab, page 51.
[COM] ANSWER_RING	Answer after … ring(s) Defines the number of rings after which TAINY GMOD-Sx will answer incoming calls that shall be routed to the application connected to its COM interface (auto-answer). Permissible values: 0, 1, 2,…, 10 Default value: 0 (Incoming calls are not automatically answered) ➲ For this parameter to be active, TAINY GMOD-Sx has to work in **Dial-up connection mode (CS)** (please see **Connection** tab, *Connect to* **TAINY SwitchingCenter / ModemServer**, *Connection mode* **Dial-up connection mode (CS)**. In **Leased line mode (LL)**, incoming calls for the COM interface are always answered automatically. If *DTR* is selected for *Control in connection mode Leased line (LL)*, the DTR signal has to be active. ➲ Instead of activating auto-answer, incoming calls can be accepted as follows: The application connected to the COM

Parameter	Explanation, configuration options
	interface answers the call with the command ATA – see *COM interface: AT commands supported in CS mode*, page 78. This requires that the TAINY GMOD-Sx be set to **Dial-up connection mode (CS)**, see page 42. ➲ An existing GPRS connection, i.e. to the TAINY SwitchingCenter, will be interrupted when a GSM data call comes in. Afterwards the GPRS connection will be restored if TAINY GMOD-Sx is set to **Leased line mode (LL)**. If *DTR* is selected for *Control in connection mode Leased line (LL)*, the DTR signal has to be active.
	TAINY GMOD-S2: ➲ The following parameters only apply for the TAINY GMOD-S2. Furthermore, they are only active if the device is configured such that incoming GSM data calls shall be routed to COM2 (see configuration tab **CSD Transparent**, page 55).
[COM2] BAUDRATE	Baud rate:..... (Default: 57600) Defines the speed with which the TAINY GMOD-S2 communicates with the application connected to its interface COM2. Permissible values: 300, 1200, 2400, 4800, 9600, 19200, 38400, und 57600. If you want to change the value use the selection list. ➲ The value set here must match the speed with which the connected application can communicate.
[COM2] FORMAT	Character format:..... Default: 8N1 (= 8 data bits, non parity, 1 stop bit) Defines the character format with which the TAINY GMOD-S2 communicates with the application connected to its COM2 port. Permissible values: 7N1, 8E1, 7E1, 8O1, 7O1, 8N2, 7N2, 8E2, 7E2, 8O2, 7O2, 8N1 If you want to change the value use the selection list. ➲ The value set here must match the speed with which the connected application can communicate.

Parameter	Explanation, configuration options
[COM2] IGNORE_RTS (YES or NO)	□Ignore RTS If during a data transmission one of the devices "can't keep up" it can notify this to the other involved device using the RTS signal. The other device can then temporarily stop the data flow. In this way a data overflow and thus loss of data are avoided. The TAINY GMOD-S2 is preset such that this type of flow control, referred to as *hardware handshake*, is completely activated, i.e.: Default for *Ignore RTS*: NO
[COM2] ANSWER_RING	Answer after … ring(s) Defines the number of rings after which TAINY GMOD-S2 will answer incoming calls that shall be routed to the application connected to its COM2 interface (auto-answer). Permissible values: 0, 1, 2,…, 10 Default value: 0 (Incoming calls are not automatically answered) ➲ Instead of activating auto-answer, incoming calls can be accepted as follows: The application connected to the COM2 interface of the TAINY GMOD-S2 answers the call with the command ATA – see *COM interface: AT commands supported in CS mode*, page 78. ➲ An existing GPRS connection, i.e. to the TAINY SwitchingCenter, will be interrupted when a GSM data call comes in. Afterwards the GPRS connection will be restored if the device is set to **Leased line mode (LL)**. If *DTR* is selected for *Control in connection mode Leased line (LL)*, the DTR signal has to be active.



CSD Fallback tab

Specify whether the TAINY GMOD-Sx establishes the connection to the communication partner only per GPRS or GPRS/Internet or also (or only) per CSD (Circuit Switch Data).

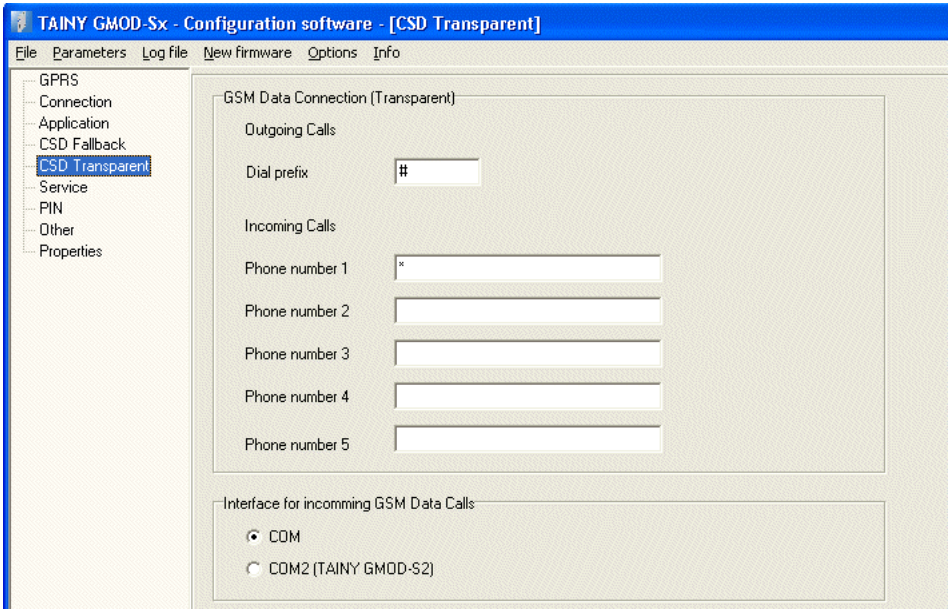
➲ As with GPRS connections, for connections specified here, data are transmitted using the TCP/IP protocol.

Parameter	Explanation, configuration options
[DIAL_UP] RETRY_TIME	New (repeated) GPRS attempt after:..... Default: 10 min If *CSD Fallback* is set as the type of connection to the communication partner the value defined here using the selection list defines the time period after which the TAINY GMOD-Sx shall once again attempt to establish a GPRS connection to the communication partner. Permissible values: 1 to 99999 (in minutes)

Parameter	Explanation, configuration options
[CSD_CONFIG] CSD_DIAL_STRING [CSD_CONFIG] USER PASSWORD	CSD phone number:..... User name..... ..... Password..... If the TAINY GMOD-Sx is configured such that it also or only establishes the connection per dial-up connection via the mobile radio network into the Internet to the communication partner, then set the number of the desired Internet service provider or RAS server here and the required user name and password. **INFO:** For the Internet: You can find the number, user name and password in the documentation from your Internet service provider. In the case of call-by-call Internet accesses this data is usually also published on the providers' Internet pages. For RAS servers: Ask the system administrator for the connection data
[CSD_CONFIG] DNS1 DNS2	DNS1:..... DNS2:..... The IP addresses of the Domain Name Servers of the Internet access used. This is only required if the TAINY GMOD-Sx uses the host name (URL) rather than the IP address for the addressing during data transmission to the TAINY SwitchingCenter OR ComPortServer. See *GPRS: Fixed / known IP address of the communication partner (TAINY SwitchingCenter / ModemServer or TAINY ComPortServer)*, page 12). If your Internet service provider only has 1 DNS then leave the field for the 2nd DNS empty. **INFO:** You can find the IP addresses of DNS1 and DNS2 in the documentation from your Internet service provider or on his Internet page or via his hotline.

Parameter	Explanation, configuration options
[DIAL_UP] TYPE=GPRS TYPE= GPRS_FALLBACK_CSD TYPE=CSD	CSD Fallback operation O Only GPRS O CSD Fallback (IP) O Only CSD (IP) Default: Only GPRS Under CSD Fallback Operation you define how the TAINY GMOD-Sx connects with the communication partners: Only GPRS: With *Only GPRS* the TAINY GMOD-Sx communicates with its communication partner exclusively via the GPRS network (or GPRS and Internet). If this connection is interrupted the TAINY GMOD-Sx continually attempts to re-establish it. This applies as long as the parameter *Control* (**COM tab**) is set to Always On or the connected application requests the connection by switching on DTR. This applies also for *Dial-up connection mode* (CS). In order to re-establish the "logic" connection in this dial-up connection mode (CS), the application has to issue the respective ATD command. Please also pay attention to the parameters *connection timeout* and *online check* in the configuration tab **Other**. CSD (IP) Fallback: With *CSD Fallback* the TAINY GMOD-Sx only establishes the dial-up connection via the mobile radio network -> Internet if a GPRS connection cannot be established (no GPRS attach possible). *Fallback* means that in this case after a specific time period the TAINY GMOD-Sx terminates the dial-up connection and tries again to establish a GPRS connection to the communication partner. This time period is defined in the field *Repeated GPRS attempt after*. If a data transmission is in progress when the fallback is due then this is completed before the fallback takes effect. If the new attempt to establish a GPRS connection is unsuccessful the TAINY GMOD-Sx again establishes a dial-up connection. On expiry of the defined time period it terminates the dial-up connection again and once again attempts to establish a GPRS connection, and so on. If the attempt to establish a dial-up connection is also unsuccessful the fallback to GPRS takes place immediately. If the attempt to connect via GPRS is then unsuccessful an attempt is once again made to

Parameter	Explanation, configuration options
	establish a dial-up connection and so on. This applies in *leased line connection mode (LL)* as long as the parameter *Control* (**COM tab**) is set to *Always On* or the connected application requests the connection by switching on *DTR*. This applies also for *Dial-up connection mode* (CS). In order to re-establish the "logic" connection in this dial-up connection mode (CS), the application has to issue the respective ATD command. Please also pay attention to the parameters *connection timeout* and *online check* in the configuration tab **Other**. Only CSD: With *Only CSD (IP)* the TAINY GMOD-Sx exclusively establishes a dial-up connection via the mobile radio network → Internet to the TAINY SwitchingCenter or ComPortServer. This is a mobile radio network dial-up connection which is billed according to its duration (charges!). If this connection is interrupted the TAINY GMOD-Sx continually attempts to re-establish it. This applies as long as the parameter *Control* (**COM tab**) is set to Always On or the connected application requests the connection by switching on DTR. This applies also for *Dial-up connection mode* (CS). In order to re-establish the "logic" connection in this dial-up connection mode (CS), the application has to issue the respective ATD command. Please also pay attention to the parameters *connection timeout* and *online check* in the configuration tab **Other**. ➲ If you configure the TAINY GMOD-Sx such that it also or only establishes a dial-up connection then please note that this could be a permanent circuit switched connection via the mobile radio network which is billed according to its duration (charges!). In this case you may wish to have the establishment of the connection between the TAINY GMOD-Sx and the communication partner controlled by the connected application with *DTR*. (see **Application** tab, page 46 *Control in connection mode Leased line (LL)*). ➲ The *server address* (in URL format) must also be specified on the **Connection** tab for a CSD (IP) connection as the IP address or host name since the TCP/IP protocol is always used for the transmission to the remote communication partner and this protocol requires the IP address of the recipient for the addressing of the data packets.



CSD Transparent tab

TAINY GMOD-Sx can also work as a GSM modem and can set up GSM data calls (CSD) with 9.600 bps to other modems in the GSM or analogue network.

GPRS and GSM data connections cannot exist simultaneously. An existing GPRS connection will be interrupted when a GSM data call comes in.

Via its interface COM, TAINY GMOD-Sx can set up GSM data connections (9.600 bps) and can also accept such calls.

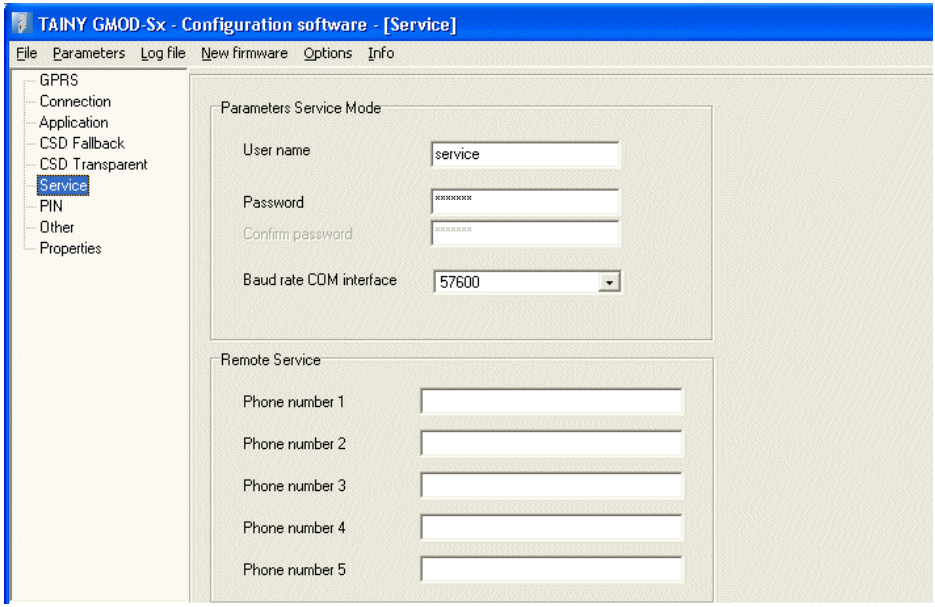
TAINY GMOD-S2 is equipped with a second serial interface, the COM2. This interface COM2 exclusively serves the purpose of accepting GSM data calls (CSD 9.600 bps, without TCP/IP protocol) from other modems in the GSM or analogue network.

For these GSM data connections the TCP/IP protocol is not used – see also GSM connections without TCP/IP protocol, page 11.

Precondition: To initiate such GSM data calls (9.600 bps without TCP/IP protocol), TAINY GMOD-Sx has to be configured for dial-up connection mode, configuration tab **Connection**, *Dial-up connection mode (CS)*.

Parameter	Explanation, configuration options
[CSD_CONFIG]	Outgoing GSM data calls
ATD_PREFIX	Dial prefix (Default #) Specifies the character used to determine that the call to be set up is a GSM data call to another Modem in the GSM or analogue network. Example: When receiving the dialling command with the defined prefix (e.g. ATD#<phone number>), TAINY GMOD-Sx recognizes that a call to a traditional modem is to be set up. The TCP/IP protocol will not be used. Permissible values: max. 10 characters, digits 0 up to 9, A, B, C, D, E, F, *, #, no blanks
[REMOTE_COM _ACCESS] COM_CLIP_0 COM_CLIP_1 COM_CLIP_2 COM_CLIP_3 COM_CLIP_4	Incoming calls Phone number 1 …… Phone number 2 …… Phone number 3 …… Phone number 4 …… Phone number 5 …… Phone numbers (CLIP) of remote stations from which TAINY GMOD-Sx will accept incoming GSM data calls for the COM interface. Default: * (all incoming GSM data calls are permissible, provided that they are not admissible for remote service). Permissible values: max. 30 characters, digits 0 to 9, +, * ➲ TAINY GMOD-Sx first checks if an incoming GSM data call is admissible for remote service. Only if the remote station is not specified for service access does it check if the call is

Parameter	Explanation, configuration options
	permissible for the COM interface. Therefore, please make sure that phone numbers specified for COM access have not already been configured for service access (**Service** tab) and vice versa. ➲ Incoming calls can be answered automatically (auto answer, please see **Application**, *Answer calls after n rings*), or the application answers the call with ATA (see *COM interface: AT commands supported in CS mode).* ➲ An existing GPRS connection, i.e. to the TAINY SwitchingCenter, will be interrupted when a GSM data call comes in. Afterwards the GPRS connection will be restored if TAINY GMOD-Sx is set to **Leased line mode (LL)**. If *DTR* is selected for *Control in connection mode Leased line (LL)*, the DTR signal has to be active.
[CSD_CONFIG] DEVICE=	Interface for incoming GSM data calls o COM o COM2 (TAINY GMOD-S2) COM: Select this setting if permissible incoming GSM data calls shall be routed to the interface COM. COM2: Permissible incoming GSM data calls are routed to the interface COM2. (**TAINY GMOD-S2 only**)



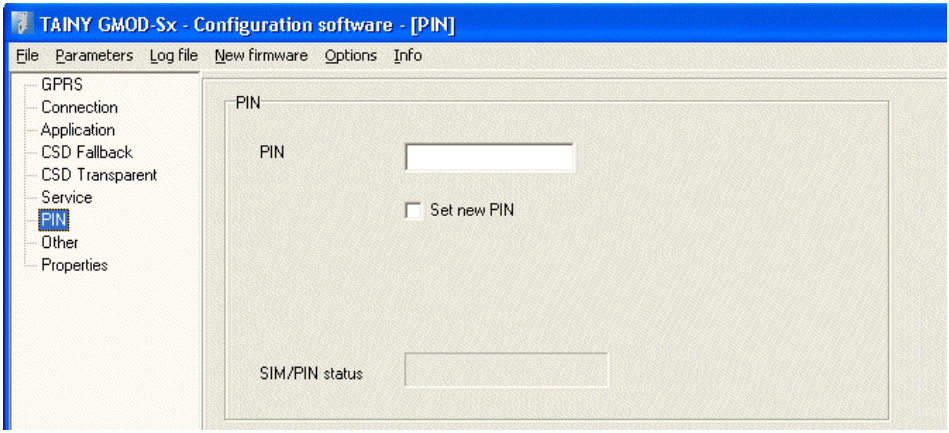
Service tab

Parameters for (remote) service. Furthermore the user name and password which the TAINY GMOD-Sx queries from the computer connected to the service interface of the TAINY GMOD-Sx.

Parameter	**Explanation, configuration options**
[SERVICE_IF] USER PASSWORD	User name..... Default: **service** Password..... Default: **service** (Each max. 30 characters, all letters and digits, no spaces, no special characters) Once the configuration program has fetched the current parameter settings of the TAINY GMOD-Sx the currently valid user name is displayed in the *User name* field and the currently valid password for the service interface in the *Password* field. The TAINY GMOD-Sx queries this user name and this password from the connected service PC when the PC dials in to fetch or store the parameters into the TAINY GMOD-Sx. The factory settings for the user name and the password are both "service". If you change the user name or password specified here the

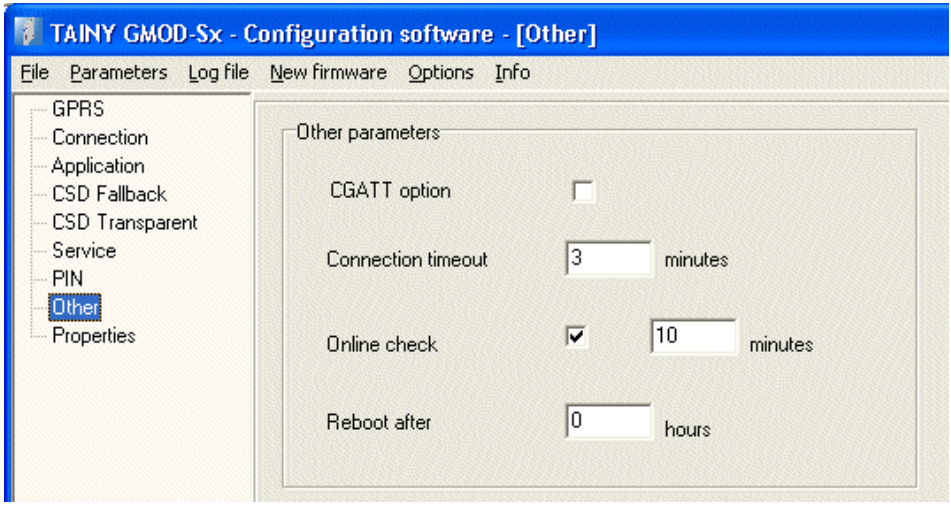
Parameter	Explanation, configuration options
	changes will be passed to the TAINY GMOD-Sx by the configuration program with the next setting of the parameters. Only when the new user name and/or the new password are activated in the TAINY GMOD-Sx following a restart does the device query them from the connected service PC when it dials in again. ➲ When changing the user name and password make absolutely sure that this change is at the same time also made for the dial-up connection used. See also page **Properties** tab. You can find step-by-step instructions for changing the user name and password in *Changing the user name and password of the TAINY GMOD-Sx service interface* on page 66.
[SERVICE_IF] BAUDRATE	Baud rate:..... (Default: 57600) This defines the speed with which the TAINY GMOD-Sx communicates with the PC connected to its service interface. (The character format is set to 8N1 and cannot be changed.) Permissible values for the baud rate: 9600, 19200, 38400, 57600 and 115200 If you want to change the value use the selection list.
[REMOTE_SERVICE_ACCESS] SERVICE_CLIP_0 SERVICE_CLIP_1 SERVICE_CLIP_2 SERVICE_CLIP_3 SERVICE_CLIP_4	Remote Service Phone number 1…… Phone number 2…… Phone number 3…… Phone number 4…… Phone number 5…… Phone numbers (CLIP) of remote stations from which TAINY GMOD-Sx will accept incoming GSM data calls for remote

Parameter	Explanation, configuration options
	service. Permissible values: max. 30 characters, digits 0 to 9, +, * * denotes that all incoming GSM data calls are accepted as service calls. ➲ TAINY GMOD-Sx first checks if an incoming GSM data call is admissible for remote service. Only if the remote station is not specified for service access does it check if the call is permissible for the COM interface. Therefore, please make sure that phone numbers specified for **COM** access have not already been configured for service access and vice versa ➲ If you specify *(Star) as remote service phone number, no GSM data call is routed to the COM interface for data transfer with the application. All incoming GSM data calls are then interpreted as service calls. ➲ GSM data calls for remote service differ from those specified in **CSD Transparent**. For remote service of the TAINY GMOD-Sx the data are exchanged packet oriented via the GSM network or GSM/PSTN using the TCP/IP protocol. When using a remote station with Windows operating system, the dial-up network connection has to be used for service calls – also see, **PPP (Point-to-point protocol)** in the section *Glossary*. ➲ An existing GPRS connection, i.e. to the TAINY SwitchingCenter, will be interrupted when a GSM data call comes in. Afterwards the GPRS connection will be restored if TAINY GMOD-Sx is set to **Leased line mode (LL)**. If *DTR* is selected for *Control in connection mode Leased line (LL)*, the DTR signal has to be active.



PIN tab Advise the PIN of the SIM card used to the TAINY GMOD-Sx.

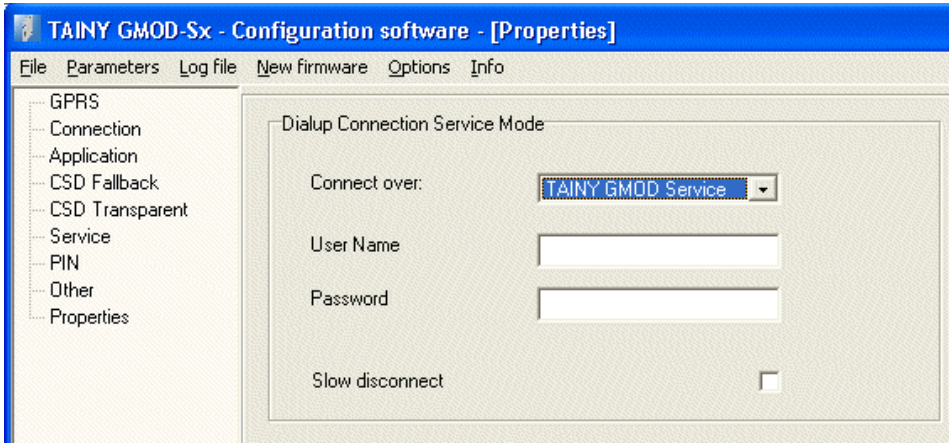
Parameter	Explanation, configuration options
	PIN:.....
[MOBILE_CONFIG] SIMPIN	In order that the TAINY GMOD-Sx can work with the inserted SIM card of the network operator the PIN number of the SIM card must be advised to the device by setting this parameter. The specified PIN is transferred to the internal mobile during the start phase. Only when the SIM card used does not have a PIN may you leave this field empty. Entry of an incorrect PIN number is indicated by an error message at the bottom in the *SIM/PIN status*. In addition the network status LED blinks fast.
	Changing the PIN number of the SIM card
NEW_SIMPIN	If you wish to program a new PIN number into the SIM card being used then activate the check box *Set new PIN* and enter the desired PIN. This is taken over by the device following a restart of the TAINY GMOD-Sx. Changing the PIN is only possible if the SIM card has a PIN and when you have previously specified and transferred the old PIN to the TAINY GMOD-Sx.



Other tab — Specify other connection parameters if required.

Parameter	**Explanation, configuration options**
[GPRS_CONFIG] SPECIAL_CGATT=YES or SPECIAL_CGATT=NO	☐ CGATT option (Default: OFF) The activated CGATT option effects improved booking in behaviour in the event of frequent cell changes in mobile applications by emptying the internal frequency list of the mobile module.
[GPRS_CONFIG] RECONNECTION_TIME	Connection timeout:.....minutes (Default: 3 minutes) The period of time for which the device waits before again attempting to establish a GPRS connection to the server if the connection has been lost. The connection timeout should be at least 3 minutes.

Parameter	Explanation, configuration options
[GSMLOG_CONFIG] TIMEOUT	Online check:.....minutes (Default: 10 minutes) Time gaps after which the TAINY GMOD-Sx checks whether the GPRS connection is still operational. Should the online check show that the GPRS connection has been interrupted it books the device back in again. Permissible values: 10, 11, …, 99
[GENERAL] REBOOT_TIME	Reboot after:.....hours (Default: **0**) If 24, for example, is entered here, a reset is performed on the TAINY GMOD-Sx automatically every 24 hours. If the value is set to 0 (= default), no automatic reset takes place.



Properties tab

User name and password of the dial-up connection via which the service PC accesses the TAINY GMOD-Sx

(These data can also be changed in the operating system, e.g. under *Dial-up networking connection*.)

Parameter	**Explanation, configuration options**
No parameter settings in para.ini	Connection via: Specifies the dial-up connection which the service PC uses to communicate with the TAINY GMOD-Sx. The service PC is connected to the service interface of the TAINY GMOD-Sx (please also see *Execute the installation program install.exe*, page 23). Or the service PC is connected via modem (remote service) with the TAINY GMOD-Sx – please also see Remote configuration, page 69. User name:..... (Default: service) Password:..... (Default: Service) Permissible characters for user name and password: • max. 30 characters, no space, no special characters The configuration program writes the user name and password specified here into the Windows dial-up connection which the service PC uses to connect to the TAINY GMOD-Sx.

Parameter	Explanation, configuration options
	➲ If you have changed the user name and/or password for the service interface of the TAINY GMOD-Sx in the *Service* menu of the configuration program (see Service, page 58), then this data must also be changed accordingly in the dial-up connection in the Windows Control Panel - but **only after** the new user name and/or new password have been activated in the TAINY GMOD-Sx! You can find step-by-step instructions for changing the user name and password in *Changing the user name and password of the TAINY GMOD-Sx service interface* on page 66.
	☐ Slow disconnect If a USB interface is used for the dial-up connection to TAINY GMOD-Sx, in some cases problems may occur when closing the connection. In these cases, please select this option.

6.3 Changing the user name and password of the TAINY GMOD-Sx service interface

To do this proceed as follows:

First change the user name and password in the TAINY GMOD-Sx and then in the dial-up connection!

1. Connect the service PC to the COM interface of the TAINY GMOD-Sx.

   Switch the TAINY GMOD-Sx to service mode by pressing the service button (longer than 1 second, max. 3 seconds).

   Execute the configuration program TAINY GMOD-SxConfig.

2. In the **Parameters** menu click on **Read parameters from GMOD-Sx**.

   Effect:

   The configuration program loads the parameter file para.ini from the TAINY GMOD-Sx into the PC and displays the configured parameters.

3. Enter the new user name/password on the *Service* tab (see Service, page 58) in the configuration program.

4, Transfer the changed user name and/or password into the TAINY GMOD-Sx by clicking on **Store parameters to GMOD-Sx** in the **Parameters** menu.

5. Switch the TAINY GMOD-Sx back to normal operating/application mode by again pressing the service button (longer than 1 second, max. 3 seconds).

   To be on the safe side perform a reset on the TAINY GMOD-Sx (switch the power supply off and then on again) to activate the new parameters and thus the new user name and/or password.

6. Enter the new user name and/or password in the *Properties* tab in order that the service computer specifies the new user name and/or password when queried during the next connection establishment to the TAINY GMOD-Sx.

   To do this use the selection list *Connect over* (in the *Properties* tab) to select the dial-up connection which you use for the service access to the TAINY GMOD-Sx. In the *User name* and *Password* fields then enter the login data (user name/password) which from now on will be queried by the TAINY GMOD-Sx.

6.4 Saving the Parameter Settings in a File / Fetching Them From a File

You can also store the settings for the TAINY GMOD-Sx in a file on the service PC. You can then access the stored settings if you want to parameterise several TAINY GMOD-Sxs.

Saving the settings in a file

To do this proceed as follows:

1. Execute the configuration program *TAINY GMOD-SxConfig*.
2. Specify the applicable parameters in the tabs, orienting yourself to your notes in the parameter table – see on page 38.

   OR

   Read the current settings out of the connected TAINY GMOD-Sx: click on **Read parameters from GMOD-Sx** in the **Parameters** menu. (In this case the service PC must be connected to the TAINY GMOD-Sx's interface COM and the TAINY GMOD-Sx must be switched to service mode.)
3. In the **Parameters** menu click on **Store parameters to file**.

   Define the file name and the folder.

Fetching settings from a file and loading them into the TAINY GMOD-Sx

To do this proceed as follows:

1. Connect the service PC to the TAINY GMOD-Sx.

   Switch the TAINY GMOD-Sx to service mode by pressing the service button (longer than 1 second, max. 3 seconds).

   Execute the configuration program *TAINY GMOD-SxConfig*.

   Important: Do not click on the **Read parameters from GMOD-Sx** command!
2. In the **Parameters** menu click on **Read parameters from a file**.

   Select the appropriate file.

   Effect:

   The configuration program TAINY GMOD-SxConfig displays the parameter values read in from the file.
3. If necessary change the displayed settings.
4. In the **Parameters** menu click on **Store parameters to GMOD-Sx**.

   Effect:

   The configuration program transfers the settings into the device.

5. Switch the TAINY GMOD-Sx back to normal operating/application mode by again pressing the service button (longer than 1 second, max. 3 seconds).

   To be on the safe side perform a reset on the TAINY GMOD-Sx (switch the power supply off and then on again) to activate the new parameters.

7 Remote configuration

Precondition

The TAINY GMOD-Sx has to be configured for remote service – see **Service** tab, page 58, in the section *Configuring the TAINY GMOD-Sx*.

On the PC used for remote service the following installations are required:

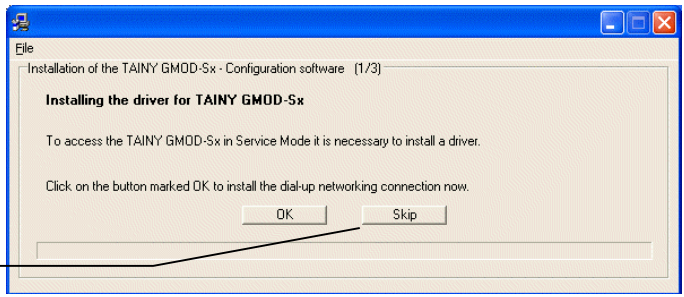
- Modem for connecting the service PC with TAINY GMOD-Sx via PSTN and/or GSM network (CSD 9.600 bps)
- a dial-up networking connection configured for remote service
  - phone number (data number) under which the TAINY GMOD-Sx can be reached
  - modem(driver) to be used for remote service
  - user name and password specified in the TAINY GMOD-Sx for service access (default: **service**)

the configuration program TAINY GMOD-SxConfig

Procedure

There are three possibilities (A, B and C):

A On the service PC execute the installation program – see *Execute the installation program install.exe*, page 23, but skip the first installation phase *Installing the drivers…*


File
Installation of the TAINY GMOD-Sx - Configuration software (1/3)
Installing the driver for TAINY GMOD-Sx
To access the TAINY GMOD-Sx in Service Mode it is necessary to install a driver.
Click on the button marked OK to install the dial-up networking connection now.
OK
Skip

Click on skip

Next you are requested to set up a dial-up networking connection. Specify the modem used to set up the remote service connection to the TAINY GMOD-Sx, further the phone number (data number) of the TAINY GMOD-Sx.

In the next (third) phase of the installation, the configuration program TAINYGPRS-RS232ConfigTSC is installed.
Run the configuration program as usual (see page 37).

The configuration program will use the dial-up networking connection specified, will load the parameters from the TAINY GMOD-Sx etc.

OR

B If you want to use the same PC for remote and for local configuration, you can simply alter the Properties of the dial-up networking connection: Simply change the entries for phone number and for the modem.

OR

C Copy the dial-up networking connection used for local configuration and store the copy under a different name. Change the data for phone number and modem.

Start the configuration program TAINY GMOD-SxConfig. As a first step, select the dial-up networking connection you want to use for remote service (**Properties** tab, *Connect over..*).

➲ To test the dial-up networking connection to the TAINY GMOD-Sx, double-click on the connection icon, enter user name and password (default each: service) and click on *Connect*.
(When the connection has been established, you can start the configuration program.)

➲ After having set up the dial-up networking connection to the remote TAINY GMOD-Sx, experienced users can also download the parameter file para.ini, edit the file and upload the edited file to the device. (Proceed as described in the fine print on page 38.

8 Log File: Connection Statistics for the Current Connection

The TAINY GMOD-Sx records the details of all GPRS connections in the log file. Only when the memory capacity of 20 KB is fully used are the old data overwritten by new data.

Viewing the log file

Prerequisites:

- The configuration program *TAINY GMOD-SxConfig* is installed on the PC which you use to view the log file of the TAINY GMOD-Sx.

Proceed as follows:

1. Connect the service PC to the TAINY GMOD-Sx.

   Switch the TAINY GMOD-Sx to service mode by pressing the service button (longer than 1 second, max. 3 seconds).

2. Execute the configuration program *TAINY GMOD-SxConfig* on the service PC. Start it as follows insofar as the specifications have been taken over during installation of this program:

   In the **Start** menu select **Programs, Neuhaus, TAINY GMOD-Sx, TAINY GMOD-SxConfig**

3. In the **Log file** menu click on **View log file**.

   Effect:

   The configuration program loads the log file from the TAINY GMOD-Sx into the PC and displays the set parameters.

4. Switch the TAINY GMOD-Sx back to normal operating/application mode by again pressing the service button (longer than 1 second, max. 3 seconds).

You can also view the statistics of all GPRS connections. To do this please refer to the chapter *Displaying Device and Status* Information.

9 Displaying Device and Status Information

Viewing device information and connection statistics using GPRS-RS232ConfigTSC

Prerequisites:

- The configuration program *TAINY GMOD-SxConfig* is installed on the PC which you wish to use for this purpose.

Proceed as follows:

1. Connect the service PC to the TAINY GMOD-Sx.

   Switch the TAINY GMOD-Sx to service mode by pressing the service button (longer than 1 second, max. 3 seconds).

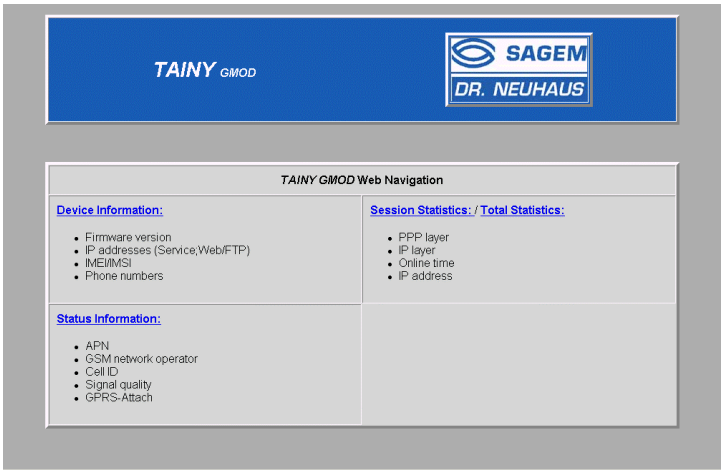
2. Execute the configuration program *TAINY GMOD-SxConfig* on the service PC. Start it as follows insofar as the specifications have been taken over during installation of this program:

   In the **Start** menu select **Programs, Neuhaus, TAINY GMOD-Sx, TAINY GMOD-SxConfig**

3. Click on **View GMOD-Sx web pages in the Info** menu.

   Effect:

   The configuration program starts the service PC's Web browser. This then displays the start page of the HTML pages stored in the TAINY GMOD-Sx:



   By clicking on the appropriate hyperlink you can have the corresponding HTML page displayed in the browser.

➲ When you have viewed the required data, switch the TAINY GMOD-Sx back to normal operating/application mode by again pressing the service button (longer than 1 second, max. 3 seconds).

Device Information page

If you wish to view this page click on the "**Device data**" hyperlink on the start page. You can also select this page directly via the following address:

http://192.168.0.8/anzeige.html

FW version:	Version of the firmware in the device
FW date:	Date of the last firmware update
Web version:	Version of the HTML files in the device
Web date:	Date of the last update of the HTML pages
Service IP:	IP address of the service interface
Web/FTP IP:	IP address of the internal **Web** and **FTP** server

GSM module data

➲ This information will not be displayed in service mode.

IMEI:	**I**nternational **M**obile station **E**quipment **I**dentity. Unique unchangeable code which is assigned to the internal mobile module (device number).
IMSI:	**I**nternational **M**obile **S**ubscriber **I**dentity. The IMSI serves to uniquely identify subscribers in wireless and wire-based communications services in accordance with Internal Telecommunication Union (ITU) standards. In the case of mobile phones the IMSI is stored on the SIM card.
Numbers (1..6):	The (own) telephone numbers stored on the SIM card. If available the voice, data and fax numbers are displayed.

Session Statistics / Total Statistics pages

➲ In service mode no information will be displayed on the *Session Statistics* page since no IP connection is active.

If you wish to view the page **"Total Statistics"** click on the respective hyperlink on the start page.

Information about the PPP layer are shown at the left and information about the IP layer at the right.

Log file explanations (next page)

PPP layer (PPP = Point-to-Point Protocol)

Packets:	
Received*:*	Number of PPP frames (data packets) received
Sent*:*	Number of PPP frames sent
Total*:*	The sum of all PPP packets sent and received during the online connection
Invalid*:*	Number of incorrect (invalid) PPP frames

Bytes:	
Received:	Number of data bytes received within a PPP frame
Sent:	Number of sent bytes of a PPP frame
Total:	The sum of all sent and received bytes at the PPP level
Invalid:	Number of incorrect bytes
Online time:	Specifies the duration of the current GPRS connection. Displayed as "***Hours.Minutes.Seconds***".

IP layer (IP = Internet Protocol)

Packets:	
Received:	Number of IP frames received
Sent:	Number of IP frames sent
Total:	The sum of all IP packets sent and received during the online connection
Invalid:	Number of incorrect (invalid) IP frames

Bytes:	
Received:	Number of data bytes received within an IP frame
Sent:	Number of sent bytes of an IP frame
Total:	The sum of all bytes sent and received at IP level during the online connection
Invalid:	Number of incorrect bytes within an IP data packet
Dynamic IP:	The IP address which the *TAINY GMOD-Sx* has received from the network provider on establishment of the connection into the GPRS network. This dynamic IP address is assigned to the device and is the IP address for incoming data packets. It can be assumed that the *TAINY GMOD-Sx* is (dynamically) assigned a different IP address by the provider each time it connects to the GPRS network.

Status Information page

➲ In service mode no information will be displayed on the *Status Information* page since no IP connection is active.

If you wish to view this page click on the "**Status information**" hyperlink on the start page.

This page provides information about the GSM network and the network operator.

The meaning of the GSM information (GSM info):

Cell ID: The Cell ID is a unique identification number for a BTS (cell). Each BTS (Base Transceiver Station) has a unique CID.

APN: **A**ccess **P**oint **N**ame. A logical defined interface on the GGSN which establishes a connection to the desired service (e.g. Internet, WAP, company network, …)

The meaning of the GSM network information (GSM network):

Operator: Name of the network operator (e.g. T-D1 etc. ...)

Signal quality: This number specifies the current signal quality of the connection in the GPRS network.

The meanings of the displayed values are shown in the table below.

Signal Quality (value)	Meaning/Signal
0	-113dBm or worse
1	-111dBm
2...30	-109dBm to -53dBm
31	-51dBm or better
99	cannot be read / unknown

GPRS Attach: **Yes** or **No** is used to specify whether or not the *TAINY GMOD-Sx* is booked into the GPRS network.

Yes = booked in (Attach)
No = not booked in

10 The Firmware of the TAINY GMOD-Sx

The firmware contains the fundamental programming of the TAINY GMOD-Sx. If the manufacturer has produced new firmware, for example to equip the device with new functions, then this can be loaded into the TAINY GMOD-Sx.

Compare the firmware version with that of your TAINY GMOD-Sx.

How you determine the version of the firmware in your TAINY GMOD-Sx is described in the chapter *Displaying Device and Status* Information, section "

" on page 73.

Updating the firmware

Prerequisites:

- The configuration program TAINY GMOD-SxConfig is installed on the PC which you wish to use to update the firmware.
- The firmware file is on the service PC.

Proceed as follows:

1. Connect the service PC to the TAINY GMOD-Sx.

   Switch the TAINY GMOD-Sx by pressing the service button (longer than 1 second, max. 3 seconds).

2. Execute the configuration program *TAINY GMOD-SxConfig* on the service PC. Start it as follows insofar as the specifications have been taken over during installation of this program:

   In the **Start** menu select **Programs, Neuhaus, TAINY GMOD-Sx, TAINY GMOD-SxConfig**

3. In the **New firmware** menu click on **Store new firmware into GPRS-RS232**.

   Select the firmware file stored on your computer to transfer it into the TAINY GMOD-Sx.

   The transfer process can take several minutes.

11 Loading Web Pages into the TAINY GMOD-Sx

Among other things HTML pages are stored in the TAINY GMOD-Sx which contain information which is output or evaluated by the device. In order that updated HTMP pages can be loaded into the device it has an FTP and Web server (with the following address: 192.168.0.8)

To load HTMP pages into the device proceed as follows:

Loading updated HTML pages into the TAINY GMOD-Sx

Prerequisites:

- The configuration program *TAINY GMOD-SxConfig* is installed on the PC which you wish to use for this purpose.
- The current HTML pages are on the service PC.

Proceed as follows:

1. Connect the service PC to the TAINY GMOD-Sx.

   Switch the TAINY GMOD-Sx by pressing the service button (longer than 1 second, max. 3 seconds).

2. Execute the configuration program *TAINY GMOD-SxConfig* on the service PC. Start it as follows insofar as the specifications have been taken over during installation of this program:

   In the **Start** menu select **Programs, Neuhaus, TAINY GMOD-Sx, TAINY GMOD-SxConfig**

3. In the **File** menu click on **Upload files**.

   Select the appropriate files stored on your computer to transfer them into the TAINY GMOD-Sx.

4. Switch the TAINY GMOD-Sx back to normal operating/application mode by again pressing the service button (longer than 1 second, max. 3 seconds).

12 COM interface: AT commands supported in CS mode

At the COM interface the following commands are supported in CS mode:

AT command	Response	Info
ATD<number>	CONNECT or NO CARRIER	Dial
ATDT<number>	CONNECT or NO CARRIER	Dial
ATDP<number>	CONNECT or NO CARRIER	Dial
ATSn (0<n<?)	OK	Call acceptance after the nth call tone. 0 means disabled
ATBn (n > 0)	OK	
ATLn (n > 0)	OK	
ATMn (n > 0)	OK	
ATT	OK	
ATP	OK	
AT&Cn (n > 0)	OK	
AT&Dn (n > 0)	OK	
AT&Kn (n > 0)	OK	
AT&Sn (n > 0)	OK	
AT&Wn (n > 0)	OK	
AT&Vn (n > 0)	OK	
AT&Yn (n > 0)	OK	
AT\Nn (n > 0)	OK	
AT\Qn (n > 0)	OK	
+++	OK	Switch to command mode
ATH	OK	Hang up
ATIn (n > 0)	The device and firmware ID are issued	

The device responds to all AT commands not listed here with ERROR.
Combined AT commands are permissible and are processed accordingly..

13 Glossary

DynamicDNS providers

offer the capability of being accessible via a fixed Internet address

Each computer which is connected to the Internet has an IP address (IP = Internet Protocol) An IP address consists of 4 numbers, separated by full stops, which each have up to three digits. If the computer is online via the telephone line per modem, per ISDN or per ADSL it is assigned a dynamic IP address by the Internet service provider, i.e. the address changes from session to session. Even if the computer is online for 24 hours without interruptions (e.g. with a flat rate) the IP address is changed from time to time.

If a local computer is to be accessible via the Internet it must have an address which is known to the remote communication partner. Only in this way can the communication partner establish a connection to the local computer. However, if the address of the local computer continually changes this is not possible, except where the operator of the local computer has an account with a DynamicDNS provider (DNS = Domain Name Server).

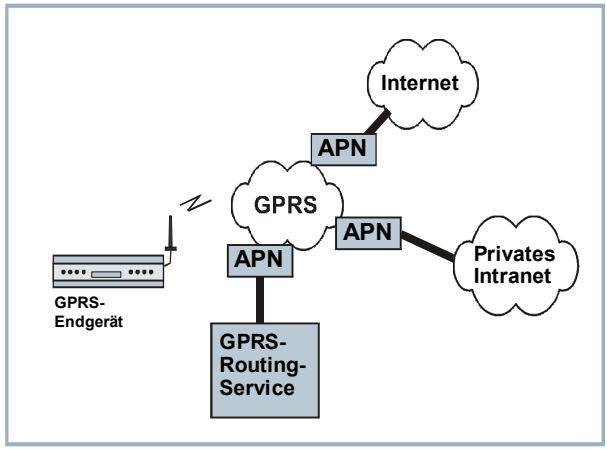
He can then define a name in URL format (URL = Uniform Resource Locator) with this provider under which the computer shall be accessible in the future, e.g. www.xyz.abc.de. In addition the DynamicDNS provider provides a small program which has to be installed and executed in the computer in question. In each Internet session of the local computer this tool informs the DynamicDNS provider of the computer's current IP address. Its domain name server registers the current assignment of URL □ IP address and advises this to other domain name servers in the Internet.

If a remote computer now wishes to establish a connection to the local computer which is registered with the DynamicDNS provider the following takes place: The remote computer uses the URL (= host name) of the local computer as the address. This results in a connection being established to the responsible DNS (Domain Name Server) to determine the IP address currently assigned to this URL. The IP address is transferred back to the remote computer which now uses it as the destination address. This now leads to exactly the desired local computer.

This procedure is the basis for all Internet addresses in URL format: First a connection is established to the DNS to determine the IP address assigned to this URL. Once that has happened this "looked-up" IP address is used to establish the connection to the desired communication partner, i.e. to any Internet site.

You can find DynamicDNS providers on the Internet under the following address: http://netzadmin.org/ddns-provider.php

APN (Access Point Name) (Access Point Name). Cross-network connections, e.g. from the GPRS network into the Internet are established in the GPRS network via so-called APNs.



During the dialling into the GPRS network the calling terminal specifies via the APN with which network it wishes to be connected:

- the Internet,
- a private company network connected via a dedicated line, or
- a GPRS routing service.

RAS (Remote Access Services) The designation for the Windows programming interface and its functions which the dial-up networking makes available to the application programs. RAS enables application programs which expect a network, e.g. a TCP/IP network, to establish a connection via the TAPI and a modem. The application does not notice at all that the data are not forwarded via a network board but via the telephone network using a modem or another transmission device. In the Windows dial-up networking so-called connections are created. The connection data for each of these connections is stored, for example a definition is made as to which modem is used to establish the connection and which network protocol is available to the application following establishment of the connection.

TCP/IP (Transmission Control Protocol/Internet Protocol)	Two network protocols which are used for the connection of two computers in the Internet. IP provides the basic mechanisms for the transmission of data packets. TCP serves to protect the connection and, for example, ensures that the data packets are forwarded in the correct order to the application. On a Windows PC the WINSOCK.DLL (or WSOCK32.DLL) takes over the handling of both these protocols.
PPP (Point to Point Protocol)	Designates a transmission procedure via serial point-to-point connections for data packets, specially for Internet access via a modem.
Service Provider	A company or institution which provides users with access to the Internet or an online service.
Protocol, transmission protocol	Devices which communicate with one another must use the same rules for this communication. They must "speak the same language". Such rules and standards are collectively referred to as a protocol or transmission protocol. Often used protocols are, for example, TCP/IP and PPP.
COM port, virtual COM port	The term "COM port" (communications port) is used to describe a serial interface (V.24, RS-232) on a Windows PC. Application programs use COM ports for data transmission to various devices such as modems, PCs, terminals etc. A COM port can have a connector (a physical COM port) or be a software interface in the PC (a virtual COM port). Virtual COM ports behave in the same way for application programs as physical COM ports but the data can be rerouted onto other interfaces.
Client / Server	In a client/server environment a server is a program or computer which receives and answers queries from the client program or client computer. In the case of data communication one also uses the term client for the computer which establishes a connection to a server (or host), i.e. the client is the calling computer and the server (or host) is the called computer.

14 Technical Data

Interface (COM	Function	Data transmission via TSC/TMS, CPS; GSM data calls (CSD 9.600 bit/s) MOC/MTC OR configuration/status information via WEB/FTP server
	Control	Always online DTR control for connection establishment AT commands for connection establishment
	Protocol	Raw data without protocol OR PPP for configuration/status information
	Standard	RS-232 (V.24 / V.28)
	Speed	300 bit/s up to 55,600 bit/s
Interface COM2 (TAINY GMOD-S2 only)	Function	GSM data calls (CSD 9.600 bit/s) MTC
	Control	AT commands
	Standard	V.24 / V.28, socket: RJ45
	Speed	300 bit/s up to 57.600 bit/s
Air interface	GSM engine	GPRS / CSD / Triple band
	GPRS	Up to 2 uplinks / up to 3 downlinks ; 1 uplink / up to 4 downlinks
	Transmission power	GSM - 900 MHz (max. 2W) DCS – 1800 MHz (max. 1W) PCS – 1900 MHz (max. 1W)
	Antenna connection	SMA / 50 Ohm
Voltage supply	Input voltage	12 - 30 VDC (24VDC nominal)
	Input current	$I_{typ.}$ 500mA@12V (I_{Peak} 1,3A), $I_{typ.}$ 260mA@24V
Ambient conditions	Temperature range	Operating: –20°C up to +70°C (>55°C Derating) Storage: –25°C up to +85°C
	Humidity	0-95 %, non-condensing
Mechanics	Construction	Top-hat rail housing
	Material	Synthetic material
	Protection catagory	IP40
	Dimensions	114 mm x 22,5 mm x 99 mm (L x W x H)
	Weight	Approx. 150g
Approvals	CE	Yes
	R&TTE	Yes
	EMV / ESD	EN 55024, EN 55022 Class A, EN 61000-6-2
	Electrical Safety	EN 60950

Accessories	Antennas	Device antenna, station antenna indoor, flat antenna, station antenna outdoor
	Power Supply Unit	Power supply unit (top-hat rail mounting), Input nom.: 100-240VAC
	Miscellaneous	Adapter DB9<-> screw terminal clip; serial cable RJ45<->DB9
Other	Scope of delivery	Device; CD with user manual, driver for service mode, configuration software
	Order no.	TAINY GMOD-S2 314400 TAINY GMOD-S1 314417

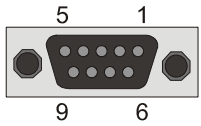
Interface COM

Pin assignment:

Signals (Signal direction DTE)

Pin1	DCD	Output
Pin2	RXD	Output
Pin3	TXD	Input
Pin4	DTR	Input
Pin5	GND	Signal ground
Pin6	DSR	Output
Pin7	RTS	Input
Pin8	CTS	Output
Pin9	RI	Output

SUB-D9 socket, Pin assignment RS232



Interface COM2 (TAINY GMOD-S2)

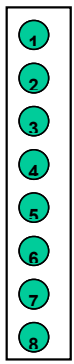
Max. length of cable: <3m

Pin assignment:

Signals (Signal direction DTE)

Pin1		Reserved
Pin2	Output	DCD
Pin3	Input	DTR
Pin4	Signal Ground	GND
Pin5	Output	RXD
Pin6	Input	TXD
Pin7	Output	CTS
Pin8	Input	RTS

RJ45 socket



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